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THE Institute for Juvenile Research represents the oldest scientific attempt to deal with the problem of antisocial behavior. Originally supported by private funds, it became a part of the Cook County Juvenile Court and later of the Department of Public Welfare of the State of Illinois.

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CHILDREN OF PRESCHOOL AGE

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CHILDREN OF THE MARY CRANE NURSERY SCHOOL OF HULL-HOUSE GREETING JANE ADDAMS, FOUNDER AND HEAD RESIDENT OF THE SETTLEMENT

CHILDREN *of* PRESCHOOL AGE

STUDIES IN SOCIO-ECONOMIC STATUS, SOCIAL ADJUSTMENT AND MENTAL ABILITY, WITH ILLUSTRATIVE CASES

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EDITOR'S PREFACE

In the genetic series of human development no period is more significant than that of early childhood. In the years from two to six the personality of the young child, at least until recently, took its form almost wholly in the environment of family influences.

The establishment of nursery schools is a most significant event in this "century of the child." Entrance into the nursery school opens up to the child a new world of social relations and adjustments. At the same time through the nursery school there may be placed at the service of children and parents the insight and knowledge of specialists in child study who find in the nursery school, itself, a setting most favorable for the detection, study, and correction of problems of behavior in the parent as well as in the child. Such a service, to be effective, requires intensive study of the individual child, supervision of treatment, and detailed recording not only of examinations but also of the response of the child to the program of treatment.

The significance of a correlated program of service and research in the preschool field was perceived by Dr. Herman M. Adler, who organized the Preschool Department in the Institute for Juvenile Research which has had the unflagging support of Dr. Paul L. Schroeder, the present director of the Institute.

This volume presents a clear, complete, and candid report of the work of the Preschool Department of the Institute by Ethel Kawin, its director since its establishment. It includes descriptions of both the nursery school and clinical services of the department with illustrative case summaries drawn from both. The reader cannot but be deeply interested in this pioneer attempt to develop research within a service program. The success of this experiment, despite the many difficulties attendant thereupon, is evidenced fascinatingly and illuminatingly both by the summaries of individual case studies and by the three research projects which throw new light upon significant factors in the per-

sonality and behavior of the preschool child. Last but not least, attention should be called to the advantage of studies of child development in the comparative situation provided by nursery schools and clinics representative of different economic and social levels of the population.

ERNEST W. BURGESS
Director, Behavior Research Fund

June 16, 1933

AUTHOR'S PREFACE

It must be admitted that the sciences which deal with human behavior are not yet at the point where definite and convincing answers can be given to the many practical questions on which intelligent parents and others who are responsible for the training of children ask guidance. When one considers the status of science in relation to problems of human behavior, however, it is really not strange that we lack these final answers to even quite elementary questions of how to train children. The study of human behavior is a comparatively recent development in the realm of science. The ultimate goal of all science is prediction and control. That goal can be achieved in the field of human behavior only through the synthesis of many diversified and highly specialized branches of scientific endeavor. Most of these are still far from "exact sciences," and very little is as yet really known (using the term in the scientific sense) about human behavior.

The function of science is to discover relationships between phenomena. Whether or not these are *causal relationships* has been a controversial issue since the dawn of science, but the study of human behavior may be said to have taken its place among the sciences through recognition of the fact that the behavior of human beings—like other phenomena of the world—is causally determined, and search for the causes that produce certain types of behavior is a characteristic of modern scientific studies in this field.[1] Such an attitude constitutes a *scientific approach*, but as yet we can scarcely speak of *laws* of human behavior, since relatively little in the whole field has been tested and proved by methods that can truly be called scientific.

Since this is the case, what do we find? We might roughly classify the present content of the field relating to human behavior into two major levels of so-called "knowledge." On the highest level are an extremely limited number of *facts* that have

[1] A note on the question of *causality* will be found in the supplementary note at the end of this volume.

been scientifically ascertained. Those that thus far can be said to constitute "laws" are largely confined to limited aspects of the field, such as the "laws of learning" or psycho-physical laws. They have been determined by scientific method and proved by scientific test. In so far as they account for present-day observations and are compatible with other known facts in the field from which they arise, they are the "scientific laws" or "truths" of today; but science knows no finalities. If they fail to account for further observations or prove to be incompatible with new facts which the future may reveal, they will have to be supplanted by new scientific laws—by greater "truths."

The physical sciences, even though they are known as the "exact sciences," easily furnish illustrations of how scientific laws are displaced, or rather amplified, by man's ever increasing knowledge. A recent example may be found in what happened to Newton's famous law of gravitation in the light of Einstein's theory of relativity when submitted to empirical tests.[2] Yet the later scientist could not have achieved his results without the contributions of those who preceded him. Each scientific worker stands, figuratively speaking, upon the shoulders of his predecessors and so is enabled to obtain a greater perspective and to see farther.

On the second level we have "knowledge" of a different sort. It consists of the hypotheses or principles of scientifically trained workers who, in the absence of proved laws, have formulated out of their wide and varied experience—critically challenged and thoughtfully evaluated—points of view and methods of procedure which must serve as guides in their work, pending the development of methods and laws that have been tested and proved by

[2] "Thus it seems that, as an exact account, Newton's theory must give place to Einstein's. In two directions—in the quantum theory and in the theory of relativity —recent physics seem to be breaking away from the fundamental conceptions by which they have been guided successfully since the days of Galileo. The new thought needs new vehicles for its expression. In some ways, it is clear, the dynamics of Newton, which ushered in two glorious centuries of science, are proving inadequate to the tasks imposed by present knowledge . . . . . Newton's dynamics still suffice to predict physical happenings to a high degree of accuracy, and to solve the practical problems of the astronomer, the physicist and the engineer. But, as ultimate physical concepts, his theories pass with an honored name into history" (William Cecil Dampier Dampier-Whetham, *A History of Science* [Cambridge University Press, 1929], chap. ix, p. 426).

scientific experiment. We cannot stop and wait to bring up the children of the world until science has proved how they should be trained and educated. Children are here; they must be educated and guided. For his own guidance in doing this, the adult must, for the most part, turn to those who have broad backgrounds of training and experience in dealing with large numbers of children. The value of the hypotheses, principles, and points of view of these specialists must be determined largely by their understanding of the principles of scientific method, their attempts to make their work as scientific as possible within the limitations which surround it—and, I would add, their *common sense*. But no matter how brilliant and capable the individual specialist may be, his principles remain only *theories* and *provisional hypotheses* until they are proved *facts* through scientific research.

To illustrate, let us take the fundamental assumption upon which such work as is presented in this volume is based—namely, the importance of the early years in the life of any individual. There is almost universal agreement today upon that point among psychiatrists, psychologists, social workers, educators, and all those who are intelligently concerned with human progress. But do we know the actual significance of particular early behavior patterns and personality trends? Are not most of our interpretations of their significance based upon life-histories of individuals who have come to grief in one way or another? What has happened is this—when such unfortunate persons get into difficulty and their case histories are secured, the facts of their childhood *as reported* usually indicate that they were "spoiled" children, or shy, "withdrawn" children, or extremely "distractible," or that they presented one or another of the behavior and personality problems characteristic of difficult children in the preschool period. Have we not then proceeded to say that these difficulties of their preschool years were early symptoms of the difficulties that developed later—perhaps even *causes* of them?

We are justified in assuming these viewpoints as *provisional hypotheses;* logic and common sense based upon experience support these interpretations. Certainly a person who has worked with adults and adolescents feels that he sees quite clearly in very

young children the mild beginnings of the more serious problems that he has met in these later ages. But we shall not really know the significance of these early behavior patterns and personality trends until we have carefully controlled studies, recorded over a number of years, of the life-histories of children who did not present early difficulties, as well as of those who did; we must also have the early histories of adults who do not come to grief, as well as those who do.

Take, for example, the so-called "spoiled" child. Is it true that he is likely to "break" later because he has not learned to adjust satisfactorily to situations in which he cannot get what he wants? Or is it possible that although some spoiled children cannot stand up to the discipline of life, others through this early indulgence simply form a habit of getting what they want from life and become the conventionally successful people who come through almost any situation to their own satisfaction? There is the further question of whether, even though the latter were true, the fostering of such types would be desirable for society as a whole.

Most of us think that the "spoiled" child develops into an adult type that is undesirable both from the standpoint of the individual himself and the social group. All the common sense of observation and experience support that view, but we shall not *know* until we have studied the lives of people who adjust successfully, as well as of those who do not. Until scientific research may have proved to the contrary, we must go on treating the spoiled child as if he were a menace to himself. We must continue parental education on the hypothesis that the spoiled child will suffer, but it is very important to remember that most of our principles are still hypotheses which we hope may some day be proved or disproved by scientific method.

Until science gives us definite answers, it is exceedingly important that we should not abandon critical common sense and reasonable tradition for unchartered seas and new dogma. Parents and others who deal with young children must depend for answers to some of their most important problems upon their own experience and common sense. Scientific workers who are specializing in the field of child development or child behavior, however,

can be helpful in offering principles of child guidance based upon both a broader and a more specialized experience than the parent or other non-professional individual is in a position to acquire.

The present volume in a general way represents these two levels of "knowledge." Part I contains a description of the service program for children of preschool age which is carried on by the Preschool Department of the Institute for Juvenile Research; Part II reports the research program that has been made possible for that same department through the Behavior Research Fund. The service given to preschool children represents that level of knowledge which consists of the hypotheses or principles and the methods of procedure which have been formulated by scientifically trained persons to serve as guides in their practical work. The research studies of Part II, on the other hand, in which data are subjected to statistical analysis, represent efforts to go beyond the realm of hypothesis or opinion to the levels where facts are ascertained and hypotheses are tested.

Since Part I consists chiefly of reports of practical work that has been done with children of preschool age, the author believes that it may be of interest to many who are actually dealing with young children in a wide variety of relationships. It is hoped that nursery-school and kindergarten teachers, nutritionists, workers in infant welfare and parent education, social workers, nurses, and others in the field of child development and child psychology may find these first five chapters suggestive in regard to their special fields of work. Intelligent parents, also, will find in these pages much informative material regarding the rôle of nursery schools and child-guidance clinics in the child-welfare programs of progressive communities, as well as points of view and suggestions regarding methods of child training which may be helpful to them in guiding their own children.

The author hopes that Part I, especially the case summaries, will be useful either as a text or as reference material for university and college students who are preparing for various types of work with young children—whether in the teaching field, in one of the medical fields, in psychology, social work, home economics, parent education, or some other aspect of child welfare.

Part II, since it consists of research studies, will be primarily of interest to those who are concerned with the more technical and abstract aspects of child development. Since the three studies presented, however, deal with problems which are of significance in planning practical programs for children, these latter chapters may also be of interest to the wider audience to whom Part I is addressed.

ACKNOWLEDGMENTS

The contents of a volume such as this represent, by their very nature, the integrated work of many colleagues, too numerous to be mentioned individually. Every worker who has at any time been on the staff of the Preschool Department of the Institute has contributed to the material reported in these pages, as have also many staff members of co-operating nursery schools and social agencies. Thanks are also due a number of other co-workers of the Institute and Behavior Research Fund staffs for various types of assistance.

All of the work reported in this volume was made possible by Dr. Herman M. Adler, under whom, as director of the Institute for Juvenile Research and of the Behavior Research Fund, the Preschool Department and its research program were established. The author also makes grateful acknowledgment to Dr. Paul L. Schroeder, who succeeded Dr. Adler as director of the Institute, for his continued support of, and interest in, the work of the Preschool Department, and to Dr. Ernest W. Burgess, Dr. Adler's successor as director of the Behavior Research Fund, who has read the entire manuscript and has given helpful criticism and suggestions throughout its preparation. Mr. John C. Wiegel, administrator of both organizations, has given very generous assistance to both the research and service programs of the department. The writer wishes to express appreciation of the help on statistical procedures given by Dr. Luton Ackerson and Miss Reba Gray and the editorial assistance of Mrs. Lilian Davis of the Institute staff.

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The author wishes to acknowledge particularly the work of three former members of the staff of the Preschool Department, who assisted in assembling and analyzing the data used in the research studies contained in Part II—Mrs. Marian Taylor Boyd, Miss Maria G. Linder, and Miss Margaret Hall.

In closing this Preface, grateful mention should also be made of the Board of Trustees and the contributors whose interest in studies of human behavior as expressed in their generous support of the Behavior Research Fund has made possible the series of monographs of which this is one.

ETHEL KAWIN

CHICAGO, ILLINOIS
May 15, 1933

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PART I

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CHAPTER I

DEVELOPMENT OF THE PRESCHOOL DEPARTMENT

Although the Illinois Institute for Juvenile Research was established in 1909 and has been in existence for nearly a quarter of a century, the Preschool Department is a relatively recent development. It was established in January, 1926, originally as a separate branch of the Institute, with headquarters in the Mary Crane building of Hull-House. The organization of this unit as a *research* project was made possible by the creation of the Behavior Research Fund, which for six years maintained the salary of the director of the unit, while the other members of the staff were provided by the state as a part of the general program of work of the Institute for Juvenile Research. When the new building which the state of Illinois provided for the Institute was ready for occupancy in the autumn of 1930, the preschool unit was transferred to these headquarters and its name was changed accordingly from Preschool Branch to Preschool Department.

It is a well-known fact that the trend of development in the fields of mental hygiene and child guidance has been, as in the field of health generally, from remedial to preventive efforts. Beginning with the study of delinquency and mental deficiency, work in these fields has progressed to the study and treatment of the problems of the very young "normal" child, in an attempt to get at behavior and personality difficulties in their earliest and mildest stages. The history of the Institute for Juvenile Research offers a concrete illustration of this trend of development. It was one of the very earliest child-guidance or behavior clinics for children to be established. It began as the "Juvenile Psychopathic Institute" for the study of delinquent boys who were brought into the Juvenile Court of Cook County because they came into conflict with the law.

Dr. William Healy, first director of the Institute, very soon

broadened the scope of its work in an effort to reach the individual delinquent and to modify his antisocial behavior before it brought him into actual conflict with the law. Under Dr. Herman M. Adler, who succeeded Dr. Healy in 1917 and remained director of the Institute until his resignation in 1930, the Institute was taken over by the state of Illinois as a preventive phase of the Division of the Criminologist under the Department of Public Welfare, and its program was extended in many directions.

As a state organization it reached out into many of the state institutions to make available for them the services of its psychiatrists, psychologists, and social workers, and also it co-operated more and more with the individual home and the school in an effort to help the child adjust to his natural environment before the more drastic measures of institutional care and treatment should become necessary. As a logical outgrowth of this development, the Institute during the last decade has included in its research and service program both co-operative work in bureaus of educational counsel in public-school systems and a preschool department—types of work that are among the farthest outposts of progress in *preventive* work with behavior and personality problems.

It was inevitable that, with the growth of interest in the child of preschool age and the rapid increase in the number of nursery schools in Chicago, a request for assistance in this special field should in time reach the Institute. In the autumn of 1925 several nursery schools requested psychiatric and psychological service from the Institute; in addition, interested men and women throughout the state were urging the Institute to organize some special work for the study of children of preschool age.

It was also at this time that Miss Jane Addams, founder and head resident of Hull-House, reorganized the activities carried on in their Mary Crane building, which is devoted primarily to work with children, and invited Dr. Adler, then director of the Institute, to open a branch office there. The plan was that the Institute would be one of several co-operating agencies to have headquarters or branch offices in the building and to participate in establishing there a health and educational center for children. The focus around which this program was to be developed was a

nursery school conducted by the National College of Education (at that time called the National Kindergarten and Elementary College). This fact, combined with the timeliness of this invitation in relation to the requests for assistance to other nursery schools, led Dr. Adler, in accepting Miss Addams' offer of hospitality, to the decision that this Hull-House branch of the Institute would be opened as a Preschool Branch—a special unit devoted to a research and service program for children of preschool age.

The conditions under which this preschool unit was established were so complex that we were obliged gropingly to find our place in relation to the various social agencies and nursery schools in connection with which we were to function. In harmony with the general policy of the Institute, we were to have a threefold function—service, research, and a teaching and training program. This work was to be carried on in nursery schools and through clinical centers for children of preschool age. But we had no nursery school of our own; we were to serve several nursery schools maintained by other organizations for various purposes. It also happened that in each of these nursery schools the physical health and nutritional program was already being carried on by another agency, so that the work of the Institute was almost automatically defined as that of the mental health field. It was a very difficult, but an interesting and challenging, situation in which we found ourselves.

The three nursery schools, in which at the outset we were expected to work, were the Mary Crane Nursery School at Hull-House, the Franklin Public School Nursery, and the Children's Community School. The last of these was a private project, and, when it went out of existence shortly after the preschool unit of the Institute was established, we substituted for it in our program of work the Winnetka Public School Nursery, which opened in the autumn of 1927 and requested our co-operation. In the autumn of 1929 another nursery school was added to our program of work, the Garden Apartments Nursery School, maintained as part of a model housing project for Negroes. A detailed description of the Institute's work in these nursery schools will be found in chapter ii.

A few months after it had been organized the preschool unit undertook, in addition to its activities in the nursery school, a clinic service. That was done in the spring of 1926 at the request of the United Charities and the Infant Welfare Society of Chicago and, like the work in nursery schools, was a co-operative venture. A more detailed account of this work is contained in chapter iii.

We had only a very small staff for the working out of this complicated program. The preschool unit in the beginning consisted of three professional workers and a secretary, with the services of a consulting psychiatrist about two days a week. It was possible to add a fourth professional worker for a period, but most of the time the department has consisted of only three professional workers. The unit was organized and has been directed throughout by a psychologist with a background of social service experience. Staff members are psychiatric social workers, psychologists, or workers who have been trained as, and function as, both psychologist and social worker. We have been fortunate in having throughout these first eight years the services of the same part-time psychiatrist, Dr. James P. Molloy.

After the preschool unit was established we naturally turned immediately to consideration of other preschool centers as possible precedents in whose footsteps we might follow. A review of the work being done by our colleagues in the preschool field, however, made us at once conscious of the uniqueness of our position and the fact that many of the problems confronting us in our set-up were peculiar to our own exceptional situation.

Most of the other preschool centers which existed at that time were maintained primarily for research or principally as nursery-school experiments for the education of the young child and his parents. In some instances these purposes were combined, but in such cases research specialists were usually in charge of the nursery schools and could direct their programs toward research goals. The only clinical centers for children of preschool age which we were able to discover were the "Habit-Clinics" conducted by Dr. Douglas Thom in Boston and a "consultation center" which was maintained in connection with the Merrill-Palmer Nursery School.

We could find no center in a situation comparable to ours, where a public organization obligated to give *service* to community agencies was also endeavoring to carry on a program of *research*, without conducting a nursery school or laboratory group under its own direction. Inquiries regarding the work of the outstanding preschool centers revealed that those in which the major goal was research were concentrating, for the most part, on experimental studies carried on in nursery schools under their control; while those which were primarily interested in the nursery school as an educational venture or in clinics as a therapeutic agency were attempting little, if any, research.

It soon became apparent that not only were we in a field that was in a pioneer stage of development, but we also had a "set-up" so different from the other preschool centers which existed that we would have to work out a program adapted to the needs of our peculiar situation. We tried to approach our problem in a spirit of open-minded investigation and with an experimental attitude. How could we best serve the nursery schools of our community? What did they want from us? What type of research could be carried on in these schools? Could our clinic service, established to meet the needs of such social agencies as the Infant Welfare Society of Chicago and the United Charities, also be made to yield research?

Two outstanding facts became apparent almost as soon as the new preschool unit of the Institute began to function. The first was that, although the nursery schools welcomed the idea of a research program to supplement their functions as educational organizations, what they really wanted first from the Institute was help in meeting their immediate and practical needs—namely, psychological tests for their children, and assistance in handling behavior and personality problems.

The second fact with which we were impressed soon after our unit was created was the need for, and importance of, *integrating* the work of the various agencies that had been asked to participate in the programs of these several nursery schools. It seemed to us, therefore, that, regardless of our ultimate research aims, our first efforts should be directed toward serving the needs of nursery

schools, in so far as we could, and toward developing a method for integrating the work of the several agencies which were co-operating in each nursery school and in the preschool clinics. It was with these ends in view that the service program of the Department was outlined.

SERVICE

An integrated program for co-operating agencies.—The need for an integrated program, when several organizations are functioning in such a situation, is obvious. One cannot divide a child into a physical self, a psychological self, a social self, an educable self, and so forth—expecting the doctor, the nurse, and the nutritionist to deal with the first, the psychologist with the second, the social worker with the third, and the school with the fourth. No one of these specialists can work effectively in isolation, ignorant of the efforts of other specialists who are dealing with the same child. The very nature of preventive work demands a co-ordinated attack from specialists in related fields in which the problems are inevitably interdependent. These various specialists should work together as a *unit organization*, and every individual child should be studied *as a whole*. He must be treated as a total personality, rather than a mere aggregation of parts, and study of his present situation should not be isolated from the wider perspective of his life-history, his past and present environment, and the probable outlook for his future.

For this principle of studying and treating the *whole child*, the world is greatly indebted to a few psychiatrists who were keenly aware of the social implications of their problems. More than two decades ago they were insisting on a study of the whole individual, his environment and his reactions to it, as contrasted with the study of his individual organ systems. An outstanding advocate of this method has been Dr. Adolf Meyer, professor of psychiatry at the Johns Hopkins University.[1]

[1] "The first step in a course of psychology for medical students is to restore in them the courage of common sense. . . . . I urge the student to trace the plain life-history of a person and to record it on what I call the life chart; the result is a record of a smooth or broken life curve of each one of the main organs and functions, and, in addition, a record of the main events of the life of the whole bundle of organs, that is, *the individual as a whole* and of the facts which determined and constituted his behavior" (Adolf Meyer, "Objective Psychology or Psychobiology with Subordination of the Medically Useless Contrast of Mental and Physical," *Journal of the American Medical Association*, LXV [September 1915], 860–62).

"The human organism can never exist without its setting in the world. All we are and do is of the world and in the world. The great mistake of an over-ambitious science has been the desire to study man altogether as a mere sum of parts, if possible of atoms, or now of electrons, and as a machine, detached, by itself, because at least some points in the simpler sciences could be studied to the best advantage with this method of the so-called elementalist. It was a long time before willingness to see the large group of facts, in their broad relations as well as in their inner structure, finally gave us the concept and vision of integration which now fits man as a live unit and transformer of energy into the world of fact and makes him frankly a consciously integrated psychobiological individual and member of a social group" (Adolf Meyer, from the address delivered at the celebration of the one hundredth anniversary of Bloomingdale Hospital, *A Psychiatric Milestone, Bloomingdale Hospital Centenary* [1921], p. 25).

Until very recently even most progressive communities have failed to co-ordinate their efforts on behalf of the child: to the educator he has been a mind to be educated; to the physician a physical organism whose health must be safeguarded; to the social worker an "under-privileged" child to be helped to better opportunities, a dependent to be supported and protected, or a delinquent who was a social misfit and had to be adjusted. It has been through the vision and efforts of such as Dr. Adolf Meyer and colleagues who shared his viewpoint, that child welfare has progressed beyond the point where specialists were content that each group should limit its study and treatment to one phase of the child.

The practical importance of this co-ordinated or integrated approach is very great. Consider, for instance, the problem of enuresis in a young child. This difficulty may be due to physical, psychological, or social causes, or to any combination of them. Most authorities agree that an actual physical cause is present in a very small percentage of cases—generally the figure is estimated at about 10 per cent. Nevertheless, careful examination by a reliable physician should be made to discover any possible physical causes. Where none can be found, attention should be turned to possible psychological and social factors that may be the cause of the enuresis. Probably foremost among these is faulty training. Faulty training often consists of establishing the

wrong emotional attitudes about this process of elimination. In many cases enuresis is a symptom of the whole faulty management of the child. Obviously the etiology of the disturbance cannot be ascertained except by the co-ordinated efforts of various specialists in related but widely differing fields. The same is true of feeding problems and many other difficulties encountered in the care and training of young children.

There was a special, additional reason why it was important that the work of the various agencies with their staffs of specialists should be integrated in our set-up. Most of the intensive work being carried on by other centers in the preschool field was being financed by grants from large foundations, through endowments, or through connections with universities. Such grants made it possible for them to employ their own staffs of specialists and to provide expensive equipment with which they might carry on their work. The number of centers thus favored must necessarily remain somewhat limited. Co-operative programs such as ours, therefore, might be challenging experiments of social significance, in that they represented attempts to organize and carry on intensive study of, and work with, young children *through the utilization of the already existing social agencies of the community*. If it could be shown that through *integration* of the work of such agencies it is possible to carry on intensive work with children comparable to that made possible by large, special grants and endowments, this would serve as a demonstration which any community possessing the usual social agencies for children might duplicate.

RESEARCH

In a field which is still in a pioneer stage of development scientifically, even descriptive accounts may be justifiably considered as phases of the fact-gathering, preliminary investigation which necessarily precedes more exact research in any science. In the broadest sense of the term, therefore, all the work of such an organization as our preschool unit may be looked upon as "research" in that it represents the gathering of descriptive data regarding the behavior of young children which may serve as a basis for the eventual discovery of new facts and perhaps ultimately of

scientific laws of human behavior. This use of the word "research," however, is dangerous. It has led, particularly in recent years in the United States, to an exploitation of the term so that it is frequently used to give a false dignity and an undue importance to work which would better be justified merely as necessary practical measures or routine techniques.[2]

For this reason we attempted in the beginning to differentiate clearly between our "service" program and our "research" program. As a part of the latter, experimental attacks were attempted upon such problems as methods of observing and recording the behavior of children in nursery schools and the emotional reactions of nursery-school children in conflict situations.[3] After our several early attempts at *experimental* research, we abandoned that as our major program. There were several reasons for this.

We found it practically impossible to maintain really controlled experiments in nursery schools which we did not ourselves control. Those in charge of the schools were very co-operative and most appreciative of whatever we did in the schools, nevertheless we were an "outside agency" and did not want to do anything that would interfere with their educational program and their daily routine. It is very difficult to carry on research under these conditions. After five years of such experience in five different nursery schools, the members of our staff are about convinced that experimental research in a nursery school cannot be carried on under satisfactory conditions without the research staff having

[2] On this point see Abraham Flexner, *Universities: American English German*. (New York: Oxford University Press, 1930), Part II, Chap. xvii.

[3] Among these earliest projects was an experiment to determine the effect of rickets on the learning ability of white rats. This project was a direct outgrowth of the fact that examinations of a large number of nursery-school children revealed physical evidence of old rickets, and the question naturally arose as to whether their mental growth might also have been affected. As is often the case, it was thought that the problem could be better attacked through animal research than through actual research on children because a more controlled experiment could be carried out that way.

The worker who undertook this project left the Institute to return to the University of Chicago for further study and completed it as her Ph.D. thesis: Margaret Frank, "The Effects of a Rickets-producing Diet on the Learning Ability of White Rats," *Journal of Comparative Psychology*, XIII (1932), 87–105.

at least a joint direction and control of the school itself. It is not impossible, however, and several such research experiments have been carried on by the staff of the Preschool Department of the Institute and by workers who came to the staff of the preschool unit to carry on specific projects.[4]

The difficulties encountered in carrying on experimental research in nursery schools maintained by different organizations for purposes other than research were not, however, the principal reason for abandoning experimental projects as the major program of the Institute's preschool unit. It seemed to us that a unit which was part of a state organization committed to a community program of both service and research should try to make an approach to research in the preschool field that would be characteristic of that unique position. As this chapter has indicated, we found ourselves obligated to carry on a service program. Instead of trying to separate our service and research as we did at the beginning of our work, we realized soon, therefore, that for us the outstanding problems were: How can a service program be made to yield research? What type of research could be logically superimposed upon the kind of work which we, as a department of the Institute for Juvenile Research, were called upon to do? Might there not be some types of research which would be a peculiarly logical and characteristic outgrowth of that work?

As a behavior clinic, the work of the Institute requires the intensive study of each individual child brought to it for help. For lack of a better term we may call these "personality studies" of children. When we entered the preschool field there were apparently no centers (except perhaps the habit clinics conducted by Dr. Douglas Thom) in which such intensive personality studies of any considerable number of children were being attempted. We were able to discover only three case studies of preschool children that

[4] 1. Kawin and Hoefer, joint study of the Elizabeth McCormick Memorial Fund and the Institute for Juvenile Research, *A Comparative Study of a Nursery-School Versus a Non-Nursery-School Group* (University of Chicago Press, 1931).

2. J. A. Jaderholm, *Studies in the Development of Personality in the Preschool Age* (in preparation as a Behavior Research Fund publication).

3. Margaret Wylie, *Negativism in Young Children* (unpublished).

had been published at that time,[5] and it was evident that there was need of this type of material on the preschool level. Although case studies in and of themselves may hardly be said to constitute research, they are a valuable contribution to a field in which workers are still groping for a quite elementary understanding and control of the behavior of individual children. It seemed, therefore, both logical and wise to direct our first efforts to intensive, individual case studies of children. Excerpts and summaries of some of these will be found in chapter v and throughout the volume.

In coming to the decision that our major efforts, at least for our first few years of work, would be directed to the gathering of individual case records of children of preschool age, we did not abandon the hope of accumulating quantitative data that might form the basis of research studies. We planned to use these records for such studies, subjecting the data gathered to statistical analysis when a sufficient number of cases to warrant such treatment had been gathered. Many difficulties and limitations are inherent in situations where the research produced must be a by-product of a service program, but perhaps certain benefits, also, may be derived from such a combined program.

The quality of research may be enhanced by the research worker's knowledge of the human subjects through a service contact with them, and, on the other hand, service organized by those with research standards and objectives may benefit. It should be characterized by an objectivity, a scientific accuracy, and an attitude of critical evaluation, which will greatly enhance its ultimate value as service, in addition to rendering a contribution to research. Laboratory studies of children cannot be satisfactory substitutes for studies of the behavior and personality reactions of children in natural, daily life-situations. Much is to be gained if we can combine research and service so that the results of the re-

[5] These three case studies were: Helen T. Woolley, *David*, "Child Welfare League of America, Case Studies," No. 2 (April, 1925); Helen T. Woolley, *Agnes* (reprinted from the *Pedagogical Seminary and Journal of Genetic Psychology*, XXXII, No. 4 [December, 1925], 569–98); Helen T. Woolley, *Peter* (reprinted from the *Pedagogical Seminary and Journal of Genetic Psychology*, XXXIII, No. 1 [March, 1926], 9–29).

search may be practically applied, and the service be established upon a scientific basis.

Six hundred and thirty-five case records of children of preschool age had been compiled by the Preschool Department of the Institute before the research studies contained in this volume were undertaken.[6] The data gathered in these records offer many and varied possibilities for analysis. Three research studies based on these case records are presented in Part II of this volume.

[6] An analysis of the sources and characteristics of these cases will be found in chapter v. That number has since increased to approximately a thousand. An additional 190 of these later cases were added to the original 635 for the third research study on mental tests.

CHAPTER II

SERVICE TO NURSERY SCHOOLS

A number of nursery schools, from time to time, have requested the services of the Preschool Department. While the services of the Institute are always available for any school which needs help in the case of an individual child, the policy of the Institute as a public agency has been to select, for its more extensive services, those schools which represent socially significant projects, such as demonstrations in public-school systems, experimental schools in educational institutions, or schools attempting to meet urgent social needs of so-called underprivileged children. By this very process of selection, the Institute found itself in each instance one of several interested, co-operating agencies. It assumed no responsibility for, nor had it any control of, the general educational policy and program of the nursery school. This was the situation in each of the nursery schools where the Institute gave its services.

The Mary Crane Nursery School was conducted by the National College of Education primarily as a teacher-training center; the physical health and nutritional programs of the school were carried on by the Infant Welfare Society of Chicago; the United Charities maintained a district office in the Mary Crane building to carry on their usual family casework, and the City Health Department established a dental clinic in the building; these last three agencies served the neighborhood in general, as well as the nursery school in particular.

The Franklin Nursery School was a project of the Chicago Woman's Club in co-operation with the Board of Education of Chicago to demonstrate a nursery school as an educational experiment in a public-school system; the physical and nutritional work there was done by the Elizabeth McCormick Memorial Fund, and a physician of the City Health Department gave daily medical inspection.

The Winnetka Nursery School was also located in a public

school and was a joint project of the Winnetka Woman's Club and the Winnetka Board of Education. The physical health and nutritional programs were carried on by the Elizabeth McCormick Memorial Fund. In the Garden Apartments Nursery School, also, the physical health and nutritional programs were maintained by the Elizabeth McCormick Memorial Fund.

Since in each instance the physical health and nutritional program of the nursery school was carried on by another agency, the work of the Institute was almost automatically defined as that of the mental health field. This consisted of psychiatric and psychological service, including study and treatment of the behavior and personality of each individual child and a mental testing program. It is impossible, of course, to work out a mental health program for a child without including consideration of his physical health, his nutritional status, his home background, and his school environment. As was pointed out in the introductory chapter, the need for integrating the work of the various agencies participating in the program of each nursery school became apparent as soon as the several agencies began to function in relation to the school.

A logical method of accomplishing this seemed to us to lie in calling together representatives of these agencies to hold case conferences on individual children. Accordingly, the Preschool Department of the Institute took the initiative in calling together the interested agencies and formulating a plan for such regular, periodic conferences. Each agency was represented, and separate conference groups were organized for each nursery school. Matters of mutual policy were brought by the agencies to these conferences for discussion, but their chief purpose was to function as a case conference.

THE CASE CONFERENCE

The way this plan has functioned may be illustrated by a description of the conferences of the Mary Crane Nursery School. Prior to the conference, the child is examined, tested, and observed by the various specialists of the co-operating agencies. At the conference the social history and family background of the child are presented by the family case worker of the United Charities,

or—if the case is not known to that organization—by the psychiatric social worker of the Institute. The findings of the physical examination and the child's nutritional condition are reported by the examining physician and the nutritionist of the Infant Welfare Society of Chicago. Observations on the behavior and personality of the child and reports of psychological test results are given by the psychiatrist and the psychologist of the Preschool Department of the Institute for Juvenile Research.

The nursery-school teacher presents a detailed report of the child in the nursery school, completing her report with a summary of his outstanding needs and problems. In some cases the nutritionist of the Elizabeth McCormick Memorial Fund reports on her contacts with the child's older sisters and brothers attending the health classes conducted by that organization in the Mary Crane building of Hull-House. A representative of Hull-House also attends the conference and contributes whatever information she thinks may be of value from their neighborly contacts with the child and his family. In special instances, where other social agencies are active on the case under discussion, the worker on the case is invited to attend and participate in the conference.

By this co-operative method what might be called a "personality study" of each child is made. Thus are laid before the members of the conference all the outstanding factors in the child's situation—whether they lie in the social and economic situation of the family, in the emotional relationships of the parents, in the child's physical condition, in his psychological make-up, or in any aspect of his personality and behavior. After consideration and discussion of all these findings, recommendations designed to improve the child's situation and further his development are made by this case-conference group. Each agency is held responsible for carrying out those recommendations which lie in its field of work. These recommendations come before the conference for review periodically; each agency reports on the recommendations for which it had been made accountable—whether or not they have been carried out; if so, with what results, and if not, the reasons why.

Members of the staff of the Institute have assumed the re-

sponsibility for integrating these various reports, summarizing the findings, discussion, and recommendations, and for sending a copy of a reporting letter containing this information to each co-operating agency, to be filed with the agency's own record of the child or his family, as the case may be.

A procedure similar to that used at Mary Crane was followed for each nursery school where the Preschool Department of the Institute was a participating agency. For the other nursery schools, however, the agency representing the physical and nutritional program at these case conferences was the Elizabeth McCormick Memorial Fund instead of the Infant Welfare Society, and the United Charities was not regularly represented at these conferences since children in these other schools came only very occasionally from dependent families.

THE REPORTING LETTER

The following sample of the type of staff letter described above is inserted as a concrete illustration of the results of such a case conference. The original of this letter was sent to the director of the nursery school and carbon copies were mailed to each of the agencies that had been represented at the conference.[1]

At the Mary Crane conference held April 1, 1930, at which representatives of the United Charities, the Infant Welfare Society, the Mary Crane Nursery School, the Elizabeth McCormick Memorial Fund, Hull-House, and the Institute for Juvenile Research Preschool Department were present, the cases of Camilo and San Juana C were discussed. A staff discussion of these children was requested by the director of the nursery school because they have been inclined to stubbornness and temper tantrums, which has made them difficult to manage in school.

Reports

Social: The visitor from the United Charities reported that the C family has been almost entirely dependent upon their organization for the past five years, since the father was so seriously injured in an accident that he has been unable to support his family. The visitor gave the following report of the family and their social situation:

This is a Mexican family consisting of father, mother, and four children—

[1] The letter as printed here is a composite of two of the staff letters on this case. Some additional facts from the social history have been inserted in order to make the family picture clear, since the reader is not acquainted with the family situation as were the workers. The names used in all case material throughout this volume are, of course, fictitious.

Manuel, age seven years and three months, Madeline, age six, Camilo, age four years and eight months, and San Juana, age two years and ten months. The two older children formerly attended nursery school but are now in the second and first grades, respectively, of public school. The two younger children are now in nursery school.

Both the father and mother were born in Mexico, but have lived in the United States for about fifteen years, moving from place to place, working in the beet fields of Kansas and Colorado. About seven years ago the father had an operation for appendicitis and felt the need of lighter employment. Upon advice of a relative they came to Chicago, hoping to find easier work for him.

While they, with a group of relatives, were on their way to Chicago from Colorado where they had lived for four years, the father was injured. He could collect no damages, since the accident was due to lack of lights on his own moving-truck. He had to remain behind in a hospital in Kansas City while the rest of the party came on to Chicago. Here the mother secured work in a factory and saved enough to go back to Kansas City and bring her husband to Chicago.

When he arrived in Chicago he was taken to the County Hospital where his difficulty was diagnosed as osteomyelitis. The medical report indicated that he would require a long period of hospitalization but that the ultimate prognosis was hopeful. The family have been known to and assisted by the United Charities since their arrival in Chicago under these unfortunate circumstances in 1925.

When the father grew stronger and was able to come home from the hospital, the United Charities made a plan of vocational training for him, recognizing that he would not be able to do heavy labor again. Under the direction of the Vocational Society for Shut-ins, he learned rug making and has earned a little money at this work. He is now receiving training in shoe repairing through the State Department of Rehabilitation at the Industrial Work Shops. The United Charities are now trying to secure a special fund to establish him in a business of his own among the Mexican people.

The family have recently moved to new quarters and the mother has managed to make the home very attractive and to keep it immaculate. She is very economical with the money given her and anxious for the family to become independent. She was much concerned for a time over the possibility of having more children. Realizing that her husband would be a permanently handicapped worker, she has been anxious to limit the size of their family to the four children which they now have.[2]

The family relationships have always appeared to be very pleasant and

[2] She was accordingly referred by the United Charities to the medical eugenics center maintained at Hull-House by the Illinois Birth Control League for consultation and advice upon this question.

the home life congenial and happy. Spanish is spoken in the home, but the family are well adjusted to American life and speak an increasing amount of English as the children are learning English in school. Both the father and mother are co-operative, intelligent, interested in their children, and anxious to do the right thing for them. They are regular attendants at a Protestant church and the mother teaches Sunday School. They also attend various classes at Hull-House. The mother has very high standards for her home. Both parents seem quiet and even-tempered in the handling of their children.

The two older children, Manuel and Madeline, presented no outstanding problems when they attended nursery school. They had, however, a tendency to show occasional stubbornness and temper and to react with a very unpleasant mood when not allowed to have their own way. These tendencies disappeared before they left nursery school, but this trait of stubbornness seems to have appeared in all four of the children in this family.

The worker of the Preschool Department of the Institute for Juvenile Research reported that in a recent conference with the mother she complained that Camilo is very stubborn and disobedient. He refuses nearly everything that he is asked to do. He is also a feeding problem. The mother's usual way of handling these problems is to let him alone, although she admits that she sometimes spanks him. He also wets his bed at night. Sometimes this is avoided by taking him up before he wets. She reports that San Juana has been a well-behaved child until recently but has lately begun to imitate Camilo's stubbornness. She also wets herself. She and Camilo get along well together. When the children are difficult, the father, who works at home all day, sometimes gets quite impatient with them.

CAMILO:

Physical: The physician of the Infant Welfare Society reported that Camilo was examined December 20, 1929. He was found to have phimosis and to be knock-kneed and slightly flat-footed. He had carious teeth, enlarged and diseased tonsils, and enlarged anterior cervical glands, a faint systolic murmur and a speech defect due to tongue-tie. He was slightly anaemic although his general condition was good. Since that examination he has had a tonsillectomy, circumcision, and dental care.

The nutritionist of the Infant Welfare Society reported that Camilo has made regular gains in weight. The mother has followed instructions as to taking him up at night and restricting liquids after 4:00 P.M., but he still continues to wet his bed almost every night. The mother gives the children a good diet and co-operates well in all suggestions made by the Infant Welfare Society. They consider her an excellent housekeeper.

Psychological: The psychologist of the Preschool Department, Institute for Juvenile Research, reported that Camilo was given a Merrill-Palmer performance test on October 14, 1929, when his chronological age was 49 months. He rated as having low average ability. He was co-operative, friendly, and persistent in his work. He did not talk at all, even in response

to questions, so that his language development could not be judged. This probably affected his rating on the test. His attention was well sustained and he was emotionally stable during the test period.

Nursery-school teacher's report: Camilo is well developed for his age and skilful in the care of his person except that he is very slow in getting things done. He is somewhat slow in adjusting to nursery-school routine but this may be largely due to his foreign-language handicap. His eating, sleeping, and toilet habits are good. His enuresis has been overcome in nursery school. He is active, impulsive, and distractible. He is very stubborn and negativistic at times. These moods are sudden and the teachers are usually unable to explain them. He is also a great tease both at home and in school. His teasing seems to be an attention-getting device. The nursery school has tried isolation as a method for handling these behavior difficulties. When isolated, however, he is likely to have fits of temper and has of late got beyond the control of some of his teachers. He can be very helpful when in a good mood. This year he was promoted to the older group but could not adjust there and had to be put back. Recently they have assigned his entire care to one teacher in order to make sure that he is consistently handled.

Psychiatric: The psychiatrist of the Preschool Department of the Institute reported a brief observation of Camilo in nursery school. He played actively and adventurously on the slide, showing no interest in any other child except his younger sister whom he ordered about. They appeared to enjoy playing together. Camilo was quick and skilful in his movements. No behavior difficulties were apparent during the period of the psychiatrist's observation.

SAN JUANA

Physical: The physician of the Infant Welfare Society reported that San Juana was examined on January 21, 1930. Her general appearance and nutrition are good, although there was evidence of slight rickets. She was a little knock-kneed. There was evidence of nail-biting.

The nutritionist of the Infant Welfare Society reported that San Juana has made regular gains in weight. She wets the bed every night. The mother has tried waking her but the child wets afterward. Mrs. C has also tried giving no liquids after 4:00 P.M. but this does not seem to help.

Psychological: The psychologist of the Institute reported that a Merrill-Palmer test was given San Juana March 17, 1930, when her chronological age was 33 months. She rated as having average ability. She did not talk at all so that her language development could not be judged, and this probably affected her rating on the test. Her behavior was somewhat resistant at times during the tests, although on the whole she appeared to enjoy them.

Nursery-school teacher's report: San Juana has been in nursery school only a short time so that not much is yet known about her behavior. She had a difficult time in adjusting to nursery school. She is also stubborn, but not to such an extent as Camilo.

Psychiatric: San Juana was observed by the psychiatrist of the Institute in nursery school. During the brief period of observation she played with no child except her brother, complying willingly to all his commands. She smiled most of the time and seemed thoroughly to enjoy herself in a quiet way. No behavior difficulties were apparent during this brief period.

A supplementary report on the present status of the two older children who formerly attended nursery school was given by the nutritionist of the Elizabeth McCormick Memorial Fund. These two children, Manuel and Madeline, are in her nutrition class. Manuel is stolid and quiet. Madeline is somewhat more active. Neither child appears to present any problems at home except that Madeline still has nocturnal enuresis. Manuel has a heart murmur and will have to be watched. The mother is very co-operative and never misses a class. It is the nutritionist's impression that perhaps the mother wants the children to be "too nice."

DISCUSSION

The psychiatrist suggested that the mother is probably too lenient with the children, and lets them "get away" with things. She has a tendency to let them alone when they resist her. Camilo is conscious of the effect of his teasing both at home and in nursery school and enjoys it. Perhaps he expects the same leniency in school that he finds at home. It was agreed that if the mother is not able to carry through requests, it would be better for her not to make them at all. The children's resistance may be related to the father's occasional impatience with them, and it may also be that because of their language handicap they may not always understand requests in nursery school and, therefore, do not carry them out. The question was raised as to whether the children get enough "legitimate" attention; they may be seeking attention by undesirable behavior. The discussion brought out the fact that most of the workers in contact with the situation, however, felt that both at home and at school they do receive adequate attention and are liberally praised for good behavior.

In regard to the enuresis it was agreed that the mother, having been enuretic herself until she was nine years of age, probably does not regard the enuresis in her children as much of a problem and, therefore, does not make very great effort to overcome it. Perhaps she accepts it as a rather natural thing in children. Camilo and Madeline, who both have enuresis, sleep together and that is probably not conducive to overcoming it. The fact was also brought out that the children sleep in their underwear. The question of acid urine as a possible factor in Camilo's enuresis was raised by the physician of Infant Welfare Society.

RECOMMENDATIONS

The following recommendations were agreed upon:

1. The physical recommendations for Camilo are the cutting of the frenum of the tongue, dental care, and ultraviolet ray treatments twice a week. He is also to be referred to Central Free Dispensary for his anaemia and for urinalysis. Infant Welfare Society will be responsible for carrying out these recommendations.

2. The physical recommendations for San Juana are that she should have light treatments, toxin-anti-toxin, cod liver oil, and should be vaccinated. Infant Welfare Society will be responsible for carrying out these recommendations.

3. The worker of the United Charities in her visits to the home will work with the mother in regard to her handling of the children, urging her to be more firm with them, not to discuss their behavior in their presence, etc. She will also arrange for the children to sleep separately and will try to secure proper sleeping garments for them.

4. Arrangements will be made for the Institute's psychiatrist to interview the mother in regard to the enuresis, stubbornness, temper, and other problems of the children.

5. After his interview with the mother, the psychiatrist will, if it seems advisable, interview the father.

MODIFICATIONS OF THE PROGRAM

For about the first two years after the establishment of the Preschool Department of the Institute, the case of every child enrolled in the nursery schools which it served was considered at such a case conference at least once during the school year. To provide such a detailed case analysis of every child would be an ideal program in nursery-school education. There is probably no child whose growth and development, environment and management, present such perfection that they could not be improved by this type of study and treatment. Furthermore, such conferences furnish, for all those who attend, an excellent means of gaining practical knowledge of standards of growth and development in regard to the physical and mental, as well as the personality and behavior characteristics of so-called *normal* children.[3] Valuable as

[3] *Teaching and training program.*—Case conferences of this type furnish the chief facility through which the Preschool unit of the Institute offers training to professional workers of other social and educational organizations in the preschool field, and to students in training. Several cases are usually discussed at a conference; the variety of problems involved and the scope of treatment indicated are likely to cover a wide range; it would be difficult to find better teaching material for those who wish to broaden their understanding and experience in the child-guidance field. Whether cases be nursery-school or clinic children (and similar staff conferences are held for both), the teachers, nutritionists, social workers, students, and others who attend find this a most effective way of adding to their practical knowledge and of relating

is the case staff conference in many respects, it is costly in that it involves the participation of a variety of professional "specialists." As the number of nursery schools asking help increased and the pressure of clinic work grew greater, therefore, it seemed advisable to limit these case-conference studies of children to those who presented some special problems which baffled either their parents, the nursery-school teachers, or some one of the other workers dealing with them.

We have tried throughout to work with an experimental attitude, reformulating our program and methods from time to time in the light of our results. Upon careful consideration the co-operating nursery schools and social agencies agreed with us that cases of children who presented no real difficulties hardly justified the time spent by the group in such a complete discussion of these cases. It was agreed that the Institute would outline a program that would differentiate the types of service to be given in various cases, based upon the apparent needs of the individual child.

During the third year of our work, accordingly, a plan was adopted which included three types of service. These services differed in the degree of intensive treatment indicated. The minimum service given by the Institute staff to every child in the co-operating nursery schools consisted of at least one, and often several, individual psychological tests. The second level of serv-

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their own special phases of work to those of their colleagues in allied but slightly different fields.

There is no formally organized teaching and training program carried on by the Preschool Department, but many phases of its work include educational programs for parents, professional workers, and students.

Special demonstrations of its work are usually given several times each year and are attended by workers of co-operating agencies, nursery-school and kindergarten teachers, nurses and nutritionists of various public-health organizations, nurses from the staffs and training schools of various hospitals, and by students of universities who are training for teaching, social service, psychology, and other specialized fields. At these meetings, talks on work in the preschool field are given by members of the Institute staff, and summaries of treatment cases are presented. The cases reported at these meetings are carefully disguised so that they cannot be identified, and the children themselves are never present, except occasionally for the demonstration of a psychological test.

Occasionally, more intensive training is given to individuals. A fellow in psychiatry or a graduate student in social service or psychology may be admitted to the Preschool Department for a training period lasting a semester or an academic year.

ice was available in any case where the child presented a problem upon which the teachers (or workers of any co-operating agency) desired further study and advice. In such instances a case conference of the type described in the preceding pages was held. The usual plan of holding each agency responsible for the recommendations that lie in its field of work was carried out.

The third type of service was given to children whose problems were sufficiently complex to justify special psychiatric treatment. In such instances, in addition to the usual examinations and the case conference, psychotherapy was carried on by the Institute in the form of periodic interviews with the parents (and sometimes also with the child), and visits to the home by a psychiatric social worker.

Analysis of results at the end of the year's work led to simplification of this plan to cover just two types of service. The first was the continued psychological test service given to every child in the nursery schools. The second was a combination of the two other services described above. It consisted of the full study of the child, culminating in a case conference, plus whatever type of treatment was indicated. It was, in fact, the equivalent of the usual child-guidance clinic service extended, in this instance, specifically to the nursery schools. In some cases recommendations could be adequately carried out by the co-operating agencies; in situations where the problems were more complex, the Institute took on the case for intensive psychiatric and social treatment.

At the end of our fourth year of work, routine psychological testing by Institute psychologists was discontinued. Since the Institute, as do practically all child-guidance clinics, urges the study of *the whole child* and his life-situation, rather than the study of any single aspect of the child, it did not seem desirable for the Preschool Department to continue giving psychological tests to a large number of children on whom it made no further study. Furthermore, by this time most of the nursery schools had developed to the point where they had psychologists connected with their own staffs, and it seemed best to leave the routine testing to them and to concentrate the efforts of the Institute's staff on the study and treatment of those individual children for whose

problems the nursery school sought special help. This is the present status of the relationship.

Looking back over this relationship of the Preschool Department of the Institute to nursery schools as it developed year by year, it seems probable that the logical relationship of such an organization to nursery schools is that of a clinic service with the additional possibility of carrying on, from time to time, special research projects related to the schools or to children of preschool age. Perhaps the most useful service that such an agency can render is to offer a central, specialized, preschool clinical service to all the nursery schools in the community. At least that appears to have been the logical and natural outgrowth of our relationship and constitutes our present position.

CHAPTER III

SERVICE IN CLINICS

The clinic service which was undertaken in the spring of 1926 at the request of the Infant Welfare Society of Chicago and the United Charities has also been, like the nursery-school program, for the most part a co-operative enterprise. Clinics are held periodically with the Infant Welfare Society at some of their district stations; children are also examined at the Institute headquarters of the Preschool Department by appointment and are referred there by other social agencies, by private nursery schools, by kindergartens, and by parents or other individuals who may have a special interest in some child.

The Infant Welfare Society of Chicago maintains district stations throughout the city to supervise the health of infants and children of preschool age. When, in the course of their work, the nurses or nutritionists come upon children with behavior or personality problems that do not yield to the general advice given as to training and health habits, these children are referred to one of the preschool clinics of the Institute. A psychiatric social worker on the staff of the Infant Welfare Society serves as liaison-worker in this relationship. This close co-operation between the Infant Welfare Society and the preschool clinics of the Institute has been found particularly valuable because of the intricate relationship that exists in these early years between the child's physical habits and his more general behavior.

Cases are referred to the Institute's clinic when it is indicated that, in addition to the advice and care regarding physical health and habits given by the Infant Welfare Society, the psychological factors related to the individual personality of the child and various factors in the home environment must be investigated in an attempt to solve the child's problems. In referring a case, the Infant Welfare Society furnishes some social history, a developmental and medical history, a report of the physical examination

given by their physician, and an account of the nutritional status, general hygiene, and routine habits of the child. The psychiatric social worker of the Institute's staff secures additional social history, and a psychologist gives various tests to the child. All of these findings are then referred to the psychiatrist of the Institute's staff who completes the examination.[1]

A staff conference with a procedure somewhat similar to that described for nursery-school cases is held following the examination, workers of both agencies being present to discuss the findings and formulate a program of treatment. If the problems of the child are primarily physical or nutritional ones, or if the personality and behavior difficulties seem rather simple and minor ones, the recommendations made at the staff conference are usually carried into the home by the nutritionist of the Infant Welfare Society in the course of her regular visits. If the problems involved are more complex and it is felt that a specially trained psychiatric social worker is needed to carry on the treatment, the Preschool Department of the Institute takes on the case for intensive treatment.

As indicated earlier, in addition to these clinics conducted in co-operation with the Infant Welfare Society, clinic service is maintained at the headquarters of the Preschool Department for other agencies or individuals wishing to refer children for examination. In such cases, all the examinations and investigations are made by members of the Institute's staff, with the exception of the physical examination of the child; parents are asked to bring a report of the child's physical condition from their regular family physician or pediatrician.

At first, the majority of cases referred to the preschool clinics came through either the Infant Welfare Society of Chicago or a family case work agency. As the work has developed and has become known to the community, however, an increasing number of children have been brought to the clinics by nursery schools, kindergartens, orphan homes, physicians, and by parents themselves. For the past several years the proportion of cases so referred has been nearly half of the clinical intake. With the growth of understanding of the principles of mental hygiene, there is a deepening realization that behavior clinics are not only for severe problems but that such child guidance is desirable for all children. As a result, intelligent parents from all social levels are bringing their children to such clinics for advice in handling them. Especially is this true of preschool clinics, since increasing study in this field has emphasized the importance of the early years and the significance of fundamental behavior patterns.

[1] Parents and children who come to these clinics usually spend the greater part of a half-day there; not more than two new and three old cases are scheduled for appointments during a half-day clinic, and preferably fewer than that.

REASONS FOR REFERRING CHILDREN TO PRESCHOOL CLINICS

In this connection it is interesting to note the reasons for referring children to the clinic service of the Preschool Department of the Institute. Problems of general discipline, such as failure to obey and temper, and feeding difficulties are the most common complaints. Enuresis is frequent, as is also inability to get along with other children—whether due to excessive shyness, overaggressiveness, or some other faulty social attitudes. Unsatisfactory speech development, persistent thumb-sucking, destructiveness, overdependence on mother, overexcitability, fears, sleeping difficulties, and masturbation are some of the other problems for which children are referred.

The children who are brought to the clinic are, for the most part, not subnormal or mentally retarded; only a small number have been referred because of actual mental deficiency. Occasionally what appears to be mental deficiency proves to be only temporary retardation due to inadequate environment or faulty management of the child. That children brought to the clinic are, on the whole, of normal mental development is borne out by the findings of a study made on 107 clinic cases, to whom Stanford-Binet intelligence tests were given. The mean intelligence quotient of this group was 105.7. As a matter of fact, an ever increasing number of children are being brought to the clinic for examination because they are mentally *above average* and their parents recognize the need for special guidance in dealing with a "superior" child.

We have carefully avoided the use of the term "problem child" in our clinics. We do not yet know which behavior patterns are "normal" for children of various ages, nor which patterns that present "problems" have their source in the child himself rather than in his life-situation. Furthermore, it is our feeling that such a concept is apt to result in a prevalent idea that some stigma attaches to the child who is brought to a behavior or child-guidance clinic. This may keep away the very child who most needs the help of the clinic and whose parents are naturally anxious to protect him from any such opprobrium. Our point of view is rather that all children have problems—some are mild and some are serious. Many mild difficulties may be overcome by parents themselves if they will give thought and study to the bringing up of their children, but in other problems they can be helped by such specialists as the clinic makes available.

Most problems appear to be "mild" problems in the preschool period. It is precisely because they are more easily modified then than later that the emphasis in recent years has been upon the study and treatment of the very young child, in the hope of avoiding the development of problems which later become serious and very difficult to correct. Intelligent parents are coming more and more to understand this. They are beginning to recognize the preschool years as the period when fundamental behavior patterns, personality trends, and foundations of character are laid. They are beginning to see the importance of "moods" and to seek help in trying to moderate tendencies to extremities of mood; they have begun to see that every gifted child, every retarded child, and every physically handicapped child is a problem for special guidance.[2]

A number of children are brought to us just for advice in regard to school placement—whether, for example, the child would be more properly placed, as regards his level of physical, mental, and social development, in a nursery school or a junior kindergarten, a regular kindergarten, or the first grade of elementary school. Parents frequently ask advice as to how to prepare the young child of the family for the arrival of an expected baby, or how to

[2] Case summaries illustrating these types of problems will be found in chapter iv.

tell their child that he is adopted. Recently a child was brought to our clinic by very intelligent parents who sought advice in helping the child to meet his first experience with the problems of birth and death in the family. And now parents are beginning to ask whether they can bring their children to our clinic for examination just to determine whether the child is developing mentally as he should, and to secure our advice and guidance regarding their parental methods of management and training. With so small a staff as ours, we have not felt able to take care of this group of cases, but probably in the coming years that type of service may be available for parents just as private pediatricians for those who can afford them, and public infant welfare stations for those who cannot, make it possible today to check periodically on the child's physical development and nutritional condition as preventive measures.

SPECIAL METHODS AND TECHNIQUES FOR THE PRESCHOOL FIELD

Although the same fundamental principles of mental hygiene apply in work with children of any age group, the preschool field demands rather specialized training and experience. One who has also had training and experience in work with older children approaches the preschool field better equipped by reason of this broader background and perspective, but whether one be in clinical work or a teacher in the educational field, one is not equipped by one's general training and experience with older children for work with children of preschool age. We have found that psychiatrists, psychologists, and psychiatric social workers must develop new perspectives and new techniques in order to become competent workers with little children. The minor difficulties of the young child, for example, seem relatively trivial and unimportant to those who in their clinical training or experience have been accustomed to deal with more serious mental ailments or major delinquencies.

To illustrate—the fact that four-year-old Mary is overly shy and cannot learn how to play with other children is a minor matter as compared with the tragic mental break-down of Virginia, aged fourteen, who has just been diagnosed "dementia praecox" and

sent to an institution; the complaints of three-year-old Tommy's mother that he is disobedient and unmanageable seem inconsequential as compared to the fact that John, age sixteen, has stolen an automobile and been brought into the juvenile court. One must have come to the belief that if Mary's early shyness could be overcome a later mental breakdown may be averted, and that we struggle with little Tommy's disciplinary problems in order that he may not some day be brought into the juvenile court for a more serious misdemeanor, before one can take work on the preschool level seriously. This is of course not meant to imply that all shy children are headed for serious breakdowns at adolescence or that all unmanageable youngsters will eventually land in a juvenile court. These unfortunate extremes are possibilities, however, and even the much milder maladjustments that may follow these early undesirable trends should be avoided, if possible.

Just as in the field of physical health today one seeks not merely the avoidance of disease but also the attainment of good health and a positive enjoyment of "well-being," so in mental health one seeks more than the avoidance of a mental breakdown or even maladjustment. Today the goal in mental hygiene goes beyond striving to overcome feelings of defeat and unhappiness as the individual goes through life, and stresses the attainment of more positive accomplishments. What is wanted are methods of education and training that will make it possible for every individual to reach his highest potential level of development, to get genuine satisfactions out of living, and to make some constructive contribution to the world in which he lives. The goal still far outruns man's strivings, but emphasis on these more positive aspects of mental well-being is a characteristic of the present trend in child-guidance work. To achieve these positive objectives within the short span of a human life the individual should be started on the right road early, and recognition of this has undoubtedly been one of the reasons for the rapid development of the preschool field in recent years.

In addition to a different perspective, work in the preschool field requires specialized techniques. The psychiatrist, for example, cannot rely for his knowledge and treatment of the patient upon

the usual "psychiatric interview." Some of his psychotherapy may be done directly with the child but even more must be done through the education and treatment of the parents, since for the most part the little child is merely reacting to the ways in which he is handled. Observation of the child in his natural settings—at home, in nursery school or kindergarten, or at play with other children—is an important aspect of work in the preschool field. Efforts are being made to develop objective methods for observing and evaluating the personality and behavior of the child, but these techniques are still in a very experimental stage of development.

Psychologists, too, must acquire special techniques to work with children of preschool age. Not only are there different tests to be mastered, but the administering of tests to very young children presents problems quite different from the giving of tests to older ones. The little child is usually unconscious of the fact that he is being "tested"; to him the tests are games to be played and the best results are probably obtained by keeping him in ignorance of the fact that they have any purpose other than to furnish him enjoyment. On the other hand, when he does not want "to play games" and resists the test situation, as is likely to happen in clinic situations, the utmost skill is required to gain "rapport" with the preschool youngster.

Other factors characteristic of these lower chronological age levels make it imperative that the examining psychologist have knowledge and understanding of young children, so that he or she may be competent to interpret the test results fairly. A certain amount of distractibility and a short attention-span, for example, are characteristic of these early years and have a quite different significance than when met upon higher age levels. The psychologist who tests a child of preschool age should be familiar with the behavior and personality aspects of little children if the test results and the interpretation of them are to be valid and reliable.

The success of the psychiatric social worker in dealing with the little child is dependent to a considerable extent on her opportunities to observe him in his home environment and in his natural play situations. In our clinical program considerable stress has

been laid, therefore, on visits to the child's home, recreational trips with the child, and observation of small groups of children brought to our clinic playroom for a few hours of play. The hours spent in the child's home serve various purposes. The worker gains further insight into the child's personality and into subtle family interrelationships. These visits also afford an opportunity to observe the methods of handling the child in the home, and sometimes enable the social worker, through actually dealing with the child's behavior problems, to help the mother develop better methods of handling him. Occasional recreational trips with the child, such as going to the zoo, the park, a marionette show, or to a children's symphony concert, create a friendly companionship between worker and child which are helpful both in the understanding and the treatment of the case.

THE GUIDANCE NURSERY

The play periods for small groups of children at clinic headquarters are the nearest approach we have thus far found possible to the Guidance Nursery of the Yale Psycho-Clinic established by Dr. Arnold Gesell. Our experience has brought us to the conclusion that such an arrangement is most desirable, if not essential, for the adequate clinical study and treatment of behavior and personality problems of children of preschool age, and we hope that future development of our work may make such a set-up possible for us. Since some readers may not be familiar with the Guidance Nursery, a brief description of it is given here.[3]

The Guidance Nursery of the Yale Psycho-Clinic (now known as the Yale Clinic of Child Development) is an adjunct to the service division of the clinic; its function is to facilitate the observation of young children and the guidance of the children and their parents. Its practical arrangements are simple. They consist of a bright, homelike nursery with a fireplace, a small cloak room with a lavatory, and an outdoor play shelter communicating

[3] This account is based upon the author's own visit to the Guidance Nursery and two of the published descriptions of it. These contain more detailed reports and will be found in the *Twenty-eighth Year Book of the National Society for the Study of Education* (Bloomington, Illinois:) Public School Publishing Co., 1929, pp. 165–66, and in a leaflet distributed by the Clinic and reprinted from the *Journal of the National Education Association* (April, 1929).

with a spacious lawn. In one corner of the nursery is an inconspicuous but roomy observation alcove for the use of parents and other observers. This alcove is separated from the nursery by a screen partition. Viewed from the nursery side this screen has the appearance of a solid wall; from the interior of the alcove, however, it is sufficiently transparent to give the hidden observers a view of the entire nursery.

The guidance procedure varies somewhat with each individual case, but typically is as follows: The parents request an appointment for an examination of the child and include specific statements describing the behavior or personality problems which perplex the parents. Usually the mother brings the child to the clinic for this first examination. Following the examination the spontaneous behavior of the child in the Guidance Nursery is observed. The clinical examiner and the guidance worker then confer and plan a special guidance program for the child.

The child comes to the Guidance Nursery thereafter at stipulated intervals, on an appointment basis. The length of these intervals and the number of visits depend upon the nature of the problem and the amount of adjustment or education needed for both child and parent. At first a child may attend two or three times a week; later only once a month. The guidance worker in charge is a trained person; sometimes she works intensively with one child but more frequently she works with several children at a time. In the autumn of 1929 the organization of the Guidance Nursery was somewhat altered to include a regular attendance group. This group becomes the nuclear unit in the re-education of children and guidance of the parents. This group is made up of five children who are in daily attendance during the academic year.

There is no fixed program of activities, but, through the equipment of the nursery and the social situations offered in the contact with other children, the guidance worker has an opportunity to "guide" the child through genuine life lessons and through new experiences. Not only may the child's behavior reactions be modified, but the mother, unseen behind the screen on occasional return visits, also receives guidance. Observing her child's be-

havior from this detached vantage point, she may get a fresh and more wholesomely objective viewpoint and learn new and better methods of child guidance. Occasional consultations and conferences with the parents are held to discuss problems of child management in relation to their own child and his behavior, both at home and in the Guidance Nursery.

Thus, although the Guidance Nursery has no fixed enrolment and lacks many of the characteristics of a school, it is designed and functions as an educational tool. It has served to demonstrate that it is possible to conduct certain forms of work in preschool and parental education on a dispensary or service-unit basis. The results achieved through the Guidance Nursery are evidence that, in many types of child development problems, occasional contacts with a guidance center are effective and that daily attendance is not necessary to accomplish positive results.

Lacking the facilities of the Yale Guidance Nursery, we have turned frequently to the regular nursery schools of the community for co-operation in our clinic cases. The Play School of the Infant Welfare Society of Chicago has also been of assistance in the treatment of special cases.[4] Where enrolment in a regular nursery school has been possible, the school has been able to correct many behavior and personality problems in which neither visits of the parent and child to the clinic nor visits of the psychiatric social worker to the home had been effective in overcoming the difficulties. Attendance in a nursery school is naturally one of the most successful forms of treatment for many of the cases that come to a preschool clinic. The established routine of the nursery school, the careful habit training, the intelligent, objective guidance of the child by trained teachers, and, above all, the socializing contacts with other children—these advantages of the nursery-school environment make it very helpful in therapy. The nursery school in such instances can often modify the attitudes and methods of the parents as well as the behavior and personality reactions of the child.

[4] A case summary illustrating co-operation of the Play School of the Infant Welfare Society and the Preschool Department of the Institute is inserted at the close of this chapter. A case in which treatment illustrates this co-operative relationship of the clinic and nursery schools is included in chapter iv.

PARENT EDUCATION

The attitudes of the parents and other individuals in the home present some of the chief problems in the work of a preschool clinic. As stated earlier, the behavior of the young child is to a considerable extent only his reaction to his environment and to the way in which he is managed. Of primary importance in a program of child guidance which aims to be preventive through work with very young children are the attitudes of the parents toward their children, and the parent-child relationships. Brothers and sisters, aunts and uncles, and grandparents—whether these relatives live in the home or not—are also important factors in the child's situation; in many cases they must be seen and their attitudes toward the child discussed with them. Sometimes the family physician is a key person in the situation and his co-operation must be enlisted as a part of the plan of treatment.

The child's environment should offer adequate provision for meeting his developing physique, intelligence, and emotions. In many homes this has been little understood, and an important part of parental education lies in helping the parent see the relationship of the child's behavior to the environment which surrounds him. If he has no adequate play space and no materials which offer possibilities for constructive play, the child will be likely to develop undesirable outlets for his growing interests and powers.

Methods of handling the child should be given thoughtful consideration; especially important are the attitudes of his parents or others responsible for his care when his behavior becomes difficult or undesirable. Behavior should be regarded as a *symptom* for which one must find the *cause*. Fundamental questions to be asked are: What is the meaning of this behavior? What need or urge within the child does it appear to satisfy? Is it likely to have some unpleasant future consequences? Is it something significant or should it be ignored?

It should always be remembered that we are not aiming at regimentation of children in regard to their behavior or personalities. In considering a child's deviation from the so-called *normal pattern* of behavior, one should not think that any and every failure to conform constitutes a problem. One should ask, "Is the

deviation a healthful variation or not? Will it make for the child's own unhappiness or maladjustment as he grows older? Will it interfere with the rights or happiness of others?" In other words, whenever a child differs from other children, one should not seek to make him be like them; the crux of the situation lies in the question of whether the deviation is desirable or undesirable and whether it is one that may safely be disregarded.

Another important phase of parent education which must form a part of clinical techniques lies in getting parents to view their own methods, as well as the child's behavior, objectively. The clinic can help parents learn to evaluate their own methods of dealing with a child's behavior problems, to discard those which fail, and to cultivate those attitudes and techniques which successfully modify the child's undesirable behavior.

Frequently it is not only parent education in regard to methods of managing the child which is needed, but intensive individual work with the father and mother to change some of their own fundamental attitudes which directly or indirectly affect the child and his reactions. In many cases parent training must begin by making the father and mother conscious of the emotional bonds which exist between them and their children; often they must be made to face the defects in their own emotional reactions—rejections or fixations—toward their children.

Experiences which the parents have had in their own childhood may become potent factors influencing their relationships to their sons and daughters. Parents often seek in their relationships to their children to compensate for their own frustrations; they may even attempt—consciously or unconsciously—to realize their thwarted hopes and ambitions by living them out in the lives of their offspring. In such cases, *psychotherapy* for the parents themselves becomes a vital part of the treatment plan. This phase of treatment, however, must be administered with great caution; sometimes a parent has found a level of adjustment which, while far from desirable in its effect upon the child, may be less devastating than the emotional upset which results when that adjustment is disturbed. Unless those responsible for the treatment program can be reasonably sure that a better level of adjustment can be

substituted, it may be wisest not to disturb such equilibrium as has been achieved. In making this decision, careful consideration must be given to the limitations inherent in the parents themselves and also in their life-situations. For this reason, one will find in most child-guidance clinics many cases where treatment of only the symptoms is attempted and where the underlying causes, for which much deeper probing would be required, appear to be disregarded.

Thus parental education, always important in the program of a child-guidance clinic, becomes one of the chief methods of treatment in dealing with a child of preschool age. In addition to individual consultations with fathers and mothers by various members of the staff of the Preschool Department, letters recommending specific methods of dealing with their children are sent to parents, and group parental education is also carried on through lectures to child-study groups, parent-teacher associations, and other organizations. This educational program has been an important phase of the Preschool Department's work.

TYPES OF CLINIC SERVICE

The minimum service given every child who comes to the clinic is the complete examination described earlier. This always includes a report of the findings and recommendations based upon them. This report is sent to the parents or to the referring agency and in some instances to both. In a few cases service is limited to this. Usually, however, some further treatment is added. The various types of treatment carried on through the clinic service of the Preschool Department of the Institute have been classified chiefly for statistical purposes, as follows:

A. *Intensive treatment.* (The clinic worker makes frequent visits to the home and attempts to assist the family in meeting all their problems. Intensive psychiatric treatment of adult members and non-psychiatric problems, however, may be referred to, and carried by, other co-operating social agencies.)

B. *Advisory service.* (In cases where the problems do not seem to require intensive treatment, where no other social agency is visiting the home, and where the family themselves seem able to carry out recommendations reasonably well, treatment is carried on through occasional visits of the parents and children to the clinic.)

C. *Co-operative service.* (Includes cases in which treatment is recommended by the clinic but carried on by some other agency, the Institute maintaining active guidance of the case through contacts with the other agency.)[5]

An effort is made to check periodically on the progress of every child examined at the clinic at least once or twice a year. This is known as *follow-up* service. Unfortunately, with a very small staff it has been possible to follow-up these children only for the first year or two following their original examinations. It would be of tremendous value for our all-too-limited knowledge of human behavior if a number of cases of children first studied when of preschool age could be consistently followed through to their adult years. Most studies up to the present have furnished us with information on a cross-section, so to speak—that is, we have data on large numbers of cases at specific ages or developmental levels. What is conspicuously lacking in our literature are continuous and comparable histories of a number of individuals dependably recorded over long periods of time. The answers to many questions in the field of human behavior might be revealed through such systematic, widespread, follow-up programs.

It seems to us that a very satisfactory clinical service for children of preschool age can be established through the co-operation of a child-health agency and a child-guidance clinic, in this instance represented by the Infant Welfare Society of Chicago and the Institute for Juvenile Research. (Many communities have agencies that correspond to these in the nature of their work, although under different names.) It seems fitting, therefore, to close this chapter with the summary of a case to illustrate the way this co-operative program of the Institute works out in actual practice.

Reasons for Referring to the Clinic

Marian L, age two years and four months, was referred to the Preschool Department of the Institute by the Infant Welfare Society in January, 1929. She had been registered with Infant Welfare Society from the time she was two months old, but only ten days before had been entered in their morning

[5] Illustrations of these three types of service will be found among the case summaries in chapter iv.

Play School because of feeding problems.[6] In the group her eating habits improved somewhat but it became apparent that she presented a number of other difficulties. Those in charge of the Play School reported that she usually came to the group screaming and did not get on well with the other children. She was overly dependent on adults, would push the other children aside and make an effort to sit on the lap of some adult. Any adult would apparently serve her purpose if she could get his or her undivided attention. She appeared to "day-dream," having a blank look much of the time, and seemed especially to resort to this behavior when she wished to avoid doing something. She showed no initiative in play but would take part in play when started by an adult. About a month before the clinic examination she had begun to suck her finger and to stammer. She also presented sleeping difficulties.

Marian's mother confirmed these Infant Welfare reports of the child's problems and added many details. For example, she said that the child had never shown any interest in food. She refused to chew solid food and would hold a bite of such food in her mouth an hour at a time, puff out her cheeks, and stare dreamily into space. She would eat foods that were mashed and drink some liquids but only if she were fed or encouraged to eat. The mother said she felt the child would starve to death unless someone fed her.

Sleeping problems also were abundant. The child was put to bed at about 8:00 in the evening but would play and sing and talk to herself for two or three hours and then cry herself to sleep. Almost every night the mother was awakened two or three times by the child's crying and screaming and talking in her sleep. The mother said that she had never had an uninterrupted night of sleep since Marian was born. There was also enuresis occurring practically every night.

The child's tendency to daydream was one of which the family were very conscious. The mother said she had never seen a child so quiet; Marian would sit for several hours in a chair without moving, holding her doll and apparently just thinking or staring into space. Nothing seemed to arouse the child's interest; even a new toy would hold her attention for only a few minutes and then she would lapse into daydreaming again. The parents

[6] The Play School of the Infant Welfare Society of Chicago was inaugurated at their Alice H. Wood Station in 1929. It was developed to give some intensive education to a small group of mothers and fathers whose children had some sort of difficulty that was not clearing up. The enrolment was limited to eight or ten children, not over four years of age, who had not made satisfactory gains in the routine program offered by Infant Welfare Society, whether that gain was in social activities, habit development, or nutrition stability. The period of enrolment was limited to the length of time it took for the child to make the necessary adjustment and to show signs of improvement. The children came at ten o'clock and were under the care of a nutritionist and a nurse from that time until after the noon dinner.

could not get her interested in other children; she seemed shy and indifferent but would have liked to sit for hours at a time in the lap of some adult. The only toys in which she seemed to have any interest were dolls.

Observation of the child at the clinic bore out the reports of her behavior that had been given by the Infant Welfare workers and the mother. There were several other children at the clinic but she looked at them quite indifferently and refused to play or talk to them. She was unusually inactive and quiet for a child of her age and preferred to sit upon her mother's lap without talking or moving.

Clinical Findings

Social background: The social history revealed that Marian was an only child, the household consisting of her father and mother and a maternal grandmother, who was a widow and lived part of the time with Mr. and Mrs. L and part with another married daughter. The father and mother were both born in Chicago, of German parentage. Mr. L was a skilled artisan and made a fair living. Both parents were intelligent and anxious to do their best for Marian. The mother was quiet and reserved; the father was devoted to the child and spent most of his evenings teaching her nursery rhymes or listening to the radio with her. Both parents spent almost all of their lesiure time in the home.

The grandmother apparently fitted quietly into the home but did constantly comment on the inactivity of Marian as compared with the hyperactivity of the grandchild in her other daughter's home.

Physical and nutritional: The physician and the nutritionist of the Infant Welfare station reported that their examinations showed Marian to be well developed and well nourished. Her general physical condition was good. There had been no irregularities in her developmental history and no illnesses other than colds reported in her medical record.

Psychological: On the Merrill-Palmer test Marian showed very superior ability. With a chronological age of 28 months, her score gave her a mental age of 44 months and placed her in the 99th percentile. She showed special ability in language. Her performance on the test indicated an unusual capacity for thoughtful reflection, as well as for criticizing and correcting her own work. Her motor co-ordination was also on a superior level. Despite her excellent concentration, she appeared markedly indifferent to the psychologist and the test, having almost a nonchalant manner during the performance. She was inclined to be dependent on the psychologist in that she often appealed for help and it required a little urging to persuade her to go on and do the test herself.

Psychiatrist's Report, Staff Conference, and Recommendations

The psychiatrist observed the child and in his interview with the mother discussed the child's problems and methods of dealing with them. A staff conference followed, participated in by the psychiatrist, psychologist, and

psychiatric social worker of the Preschool Department of the Institute, and the Mental Hygiene Supervisor and the nutritionist who was in charge of the Play School of the Infant Welfare Society.

Reports and discussion brought out the following as outstanding factors in the case:

1. The mother's own shyness and reticence.
2. The father's overemphasis on intellectual activities in playing with the child.
3. The mother's tendency to increase the child's overdependence by feeding and dressing her.
4. Feeding difficulty as a possible device used by a child of superior intelligence to remain on a more infantile level because of the satisfaction she gets through the adult attention.
5. The sleeping difficulties possibly associated with too little activity during the day. Waking up at night in itself would not be of much significance but staying awake, crying, and wishing to go to her mother's bed point to too great dependence on the mother.
6. Lack of social contacts in the home for both the parents and the child. The child an only child with little opportunity to play with other children.
7. The fact that the child not only lacked opportunity for contacts with other children, but because of having had ample satisfaction from companionship with adults, probably felt no need for learning to play with other children.
8. The superior intelligence of a child who needs activity of an especially high level to keep her interested; therefore becomes easily bored and is not interested in other children, especially since her interests have been stimulated by her parents.

It was agreed that Marian should continue to attend the Infant Welfare Play School daily and that Infant Welfare Society would, therefore, assume active responsibility for treatment of the case, with the Preschool Department of the Institute serving in an examining, consulting, and advisory capacity.

In general the recommendations made stressed the following points:

1. The child should be given more opportunity to do things for herself—for example, she should learn to take the responsibility of feeding and dressing herself.
2. The parents and others who handle Marian should strive to make her sitting-down time less interesting and to arouse more interest in active play.
3. Every effort should be made to encourage more companionship with other children.

These recommendations were translated into specific and detailed suggestions for the mother and were included with the reports of the clinic examination in the letter sent to her by the Institute. The attempt to embody the general recommendations in concrete suggestions and simple language is illustrated by the following extract from the letter:

You told us that Marian is very inactive for a child of her age and we also noticed at the clinic that she seems very dependent on adults. It is, of course, only natural that parents should enjoy doing things for their children. On the other hand, it is a very valuable experience for a child to learn to do things for herself. Therefore, we feel that it would be well for you to let Marion wash herself, feed herself and help to dress herself. Encourage her self-reliance and independence as much as possible and make her feel that she is getting to be a big girl and that she can be a help to you in doing little things around the house. Marian, with her good mental abilities, should be treated a little more like an older child and you will probably find that, as she learns to take more responsibility for herself, she will become more active and more interested in things around her. Furthermore, do not carry Marian about; spend some definite time with her in active play, such as playing ball, tag, hide and seek, and other similar games—out of doors as much as possible. Marian is a child who should be restricted very little and she should be allowed to express her emotions freely and to enjoy herself as much as she wants to.

For a child who, like Marian, has very good intelligence it is fairly easy to learn nursery rhymes and letters, but at her age she should not be taught too many things involving memory and purely intellectual abilities. We think it is more important for her to learn to do things for herself and to learn to play with other children as this will mean a well-rounded development. We are sure that both you and her father will encourage Marian along these lines and we feel certain that with more active outdoor play and a little less intellectual stimulation, her sleeping difficulties will gradually disappear.

Treatment and Re-examinations

About once every month for three months following the examination, the Institute received a report of Marian's progress from the Infant Welfare Society. They indicated consistent effort on the part of the mother to carry out the suggestions made by the Institute, and a steady improvement in the behavior of the child. At the end of four months the clinic worker of the Institute asked that Marian return for a re-examination, but whooping cough developed by the child and the illness of the mother led to the postponement of this examination.

The following October the Infant Welfare Society reported that Marian no longer presented any particular problems in the group, but they requested a re-examination by the Institute because the child was in extremely poor physical condition. An examination by the Infant Welfare physician a month before had revealed buried tonsils as the cause of Marian's loss of weight and a tonsillectomy was recommended. A "roughened first sound" in the heart had also been noted. The mother, reluctant to have a tonsil operation performed, had taken the child to two "private" physicians, both of whom, according to her report, told her a tonsillectomy was unnecessary. The Infant Welfare Society then suggested a complete physical examination at a children's hospital. This was done and a tonsillectomy was again recommended. To make this examination complete, the Infant Welfare Society asked that the Institute for Juvenile Research re-examine and check for

any psychological causes that might be contributing to Marian's poor physical condition.

At the time of Marian's re-examination in October the mother reported that the child had improved very much in many respects; she felt that attendance in the Infant Welfare Play School and the Institute's recommendations had been very helpful. Marian's feeding problems had practically disappeared and the bedwetting had ceased. She was much more independent —dressed herself and went to the toilet alone. She was somewhat more active than formerly but still not so active as other children her age. She was no longer especially shy; finger-sucking and the other minor problems had also disappeared.

The chief problem in the mother's mind was the fact that Marian still continued to lie awake at night long after she was put to bed. She seemed perfectly content to lie in bed and did not appear disturbed nor demand attention but she would seem wide awake, interested in all kinds of things, and jabber to herself for a couple of hours before falling asleep. Once asleep she would sleep soundly through the night. This same behavior occurred at naptime in the afternoon. The mother wondered whether this wakefulness might be due to too little physical activity and asked whether she should attempt to force more such activity before bedtime. She also said her husband still continued to teach the child to spell and they wondered whether that might be too stimulating for her.

As Marian was now three years old she was given a Stanford-Binet intelligence test at the second clinic examination. With a chronological age of just three years the test results indicated a mental age of 4 years, 8 months, yielding an Intelligence Quotient of 156 and putting her in the group classified as extremely superior. The psychologist found that whereas in the test given her the previous February she had been passive, disinterested, and needed urging, in this test she was friendly and responsive, made good effort, and never asked for help.

The psychiatrist's observations of the child at the clinic bore out the improvement reported by the mother and the psychologist.

At the staff conference following this examination, in which representatives of both organizations again participated, it was agreed that no special effort should be made to urge the child to greater activity. It was felt that with the removal of her tonsils Marian's physical condition would probably improve, with the result that she would become more vigorous and more active physically. It was felt that with this greater activity her tendency to wakefulness would also probably disappear. The only recommendation made was a repetition of the one made formerly—that special efforts to teach Marian to read and spell should be discontinued. A letter containing these reports was again sent to the parents and the suggestion made that the father, who had not been interviewed by the Institute, might come to talk to the psychiatrist—but he did not come.

A tonsillectomy was performed in November. Marian's appetite at once improved and she gained two and one half pounds in two months; before that she had gained only twelve ounces in one year. She showed a marked gain in physical activity and by February the Infant Welfare Society reported that she was as active as the other children in their group.

Marian was again examined the following June. The only problem of any consequence that still remained was her lying awake long after she was put to bed. As the child was gaining in weight and appeared to be in good physical condition, the psychiatrist advised the mother not to be concerned about this. A third psychological test at this examination again indicated the child's superior intelligence. Entrance to kindergarten was advised for the following autumn.

A fourth examination—the last that has been made to date—was given the following spring, more than two years after the initial examination and when Marian was four and one-half years old. The sleeping problem had disappeared. Some feeding problem persisted, due apparently to the fact that Marian was still not much interested in food and her grandmother insisted upon feeding her. The child, however, had continued to gain steadily in weight. No other problems were reported. The Stanford-Binet intelligence test given at the clinic indicated at the time of this fourth examination an intelligence quotient of 148. A letter was sent to the family urging continued efforts to develop independence in Marian, especially in regard to feeding.

Comments

This case illustrates some of the advantages of co-operative work between a child-health agency and a child-guidance clinic—advantages of mutual benefit to both organizations and to the patient. The *causes* of this child's difficulties were in part physical, and in part psychological and social. That is, the improvement which followed the removal of the tonsils naturally suggests the question: Were the inactivity, the dreaminess, and perhaps some of the other problems due to an intoxication from diseased tonsils which did not appear diseased at earlier examinations but in which disease was evident only about a month before the tonsillectomy? Although the bad tonsils were probably a contributing cause, it seems obvious that parental attitudes and methods also played a large rôle. The joint attack of the physician and nutritionist of the one organization and the psychiatrist, psychologist, and psychiatric social worker of the other was, therefore, a great advantage in overcoming the problems.

The fact that the case remained under the daily supervision of the specially trained nutritionist in charge of the Infant Welfare Play School was a great advantage in carrying on treatment. The Institute could count upon this careful program of habit-training and constant effort to overcome the child's difficulties, and so confine its attack to the general and fundamental underlying problems. Specific recommendations for handling every one of the

problems presented by a child seems undesirable in some instances. In Marian's case such detailed advice was avoided for several reasons. Some of her behavior and personality problems were thought by the psychiatrist to be related to the more general and fundamental problem of her overdependence on adults and her lack of interest in play with other children; thus the overdependence became the chief object of attack in the treatment program. Bed-wetting, for example, was not considered an outstanding problem in a child at the age of 2 years, 4 months, and, as the history indicated, had ceased before the second examination. Also, as is frequently the case, it was thought advisable to avoid in the beginning a long, detailed plan of treatment for the parents to follow; it seemed wiser to get them started on a few attitudes and methods that seemed fundamental, leaving more detailed advice on minor difficulties to be given later, if necessary.

CHAPTER IV

CASE SUMMARIES

The following case summaries illustrate a few of the types of problems, referred to in chapter iii, which are treated by the staff of the Preschool Department, and the types of service into which the clinical functions of the department are classified (also described in chapter iii); the co-operative relationship of the department with nursery schools is also illustrated by a case summary.

Limitations of space permit the presentation in this volume of only a few of the thousand cases that have been studied in the eight years since the Preschool Department was established. It has not been possible, therefore, even to suggest here the scope of its clinical functions, the wide range of socio-economic situations which the families contacted represent, nor the extremely varied, complex, and interesting problems which are studied. In fact, preference has been given, in collecting these illustrations, to cases where the family background is fairly simple and the problems not too complex, so that the record of each case could be compressed into a small number of pages.

Even so, it must be remembered that each of these summaries represents a very brief digest of records that in themselves are very extensive and extremely detailed, so that it may often seem to the reader that important aspects of the case have been ignored or at least given very superficial treatment. For teaching purposes, therefore, these case summaries may be used as a basis for wider and more detailed discussion of the problems presented and their possible treatment than has been possible here.

The utmost care has been taken to conceal the identity of every case referred to in this volume. Not only have fictitious names been used, but other identifying data which were considered irrelevant to the points which the case serves to illustrate have also been changed in order to complete the disguise. Even the names of co-operating agencies, where it seemed that they might possibly

lead to identification of the case, have been omitted, in spite of the fact that one would always prefer to acknowledge such co-operation of other social agencies. *On the other hand, no fact which seemed significant in the situation or treatment of an individual child has been altered in any case.*

ROBERT M—A CASE ILLUSTRATING INTENSIVE TREATMENT; A PROBLEM OF DISCIPLINE

Initial statement of problem.—In the late summer of 1928, shortly after his fourth birthday, Robert was referred to the Preschool Department of the Institute by the Infant Welfare Society because he got utterly beyond the control of his parents. He was said to be difficult to manage at all times and to behave "wildly" when strangers came into the home. His behavior had become increasingly difficult since a tonsil and adenoid operation, which was performed a month before he came to the Institute clinic.

Family background.—Robert was the older of two boys; his brother was about two and a half years younger. His father was born in Europe, came to the United States after he was grown, and had had little, if any, formal schooling. His usual occupation was that of waiter, but he had been out of work for almost a year when the family became known to the Institute. He usually earned a living wage when working; he was an ardent member of the waiter's union and preferred being unemployed to accepting wages below the accepted union scale.

Although he had had almost no formal education, Mr. M, Robert's father, was an intelligent man. After he came to the United States he attended night school and learned to read and write. He was fond of his children, but accepted little responsibility for their training, and was somewhat impatient of them. He was very critical of his wife's methods of handling the children, but admitted that he could not handle Robert properly either. He expressed the opinion that parents usually do not know how to bring up children and that the training of children should be given over to individuals who have specialized in this field.

Robert's mother was also of foreign birth, but had come to the United States in her late "teens." She, too, had received almost no formal schooling but had attended night school and was a fairly

intelligent woman. She was very emotional and impatient in handling her children, but she was at least aware of these weaknesses, and frankly blamed herself for some of Robert's bad behavior. She appeared to be fairly receptive to new ideas regarding her management of him, and appeared willing to try to carry out suggestions.

The parents had been married several years and both were over thirty years old when Robert was born. They appeared to be rather fond of each other but quarreled frequently over Mr. M's refusal to accept less than union wages and over the management of their children. There was no money for recreational outlets and the home atmosphere was quite strained and tense. They lived in a three-room flat in a rather poor, foreign neighborhood, but there was a back porch and a yard for the children to play in.

Developmental and health history.—There was nothing unusual reported in the circumstances of Robert's birth nor in his early developmental history. He had never been a bottle baby; there had been no feeding difficulties except that he had always vomited eggs. He had been under the care of the Infant Welfare Society since he was a month old; chicken pox had been his only illness, except for occasional colds and earaches before his tonsils and adenoids were removed. The physical examination made by the Infant Welfare physician just before Robert came to the Institute indicated fair development and nutrition, with no special weaknesses or defects.

Personality and behavior.—Robert was of about average size for a four-year-old, had an abundance of brown curly hair and a roguish twinkle in his eyes. At the clinic he was active, lively, assured, and a bit saucy in a good-humored, friendly way.

His mother's account of his behavior centered chiefly around his disobedience, his general wildness, and his sleep disturbances. She reported that both she and her husband had great difficulty in getting him to "mind." As the father was home relatively little, disciplining was left to the mother. "I talk and talk and talk, and it does no good," she said, "and when Robert sees his father, he gets even wilder." She often resorted to spanking as a means of punishment but felt that it didn't "do any good"; once she locked Robert

in a room, but he screamed so loudly that the neighbors came to see what was the matter. She had even tried crying herself to make him stop being naughty; she reported that this method had sometimes "worked." Usually, if he did not get what he wanted, Robert would lie down on the floor and kick and scream. Then she would give in to him because he "gets on my nerves."

When strangers came into the house, Robert would hide under tables, tip over chairs, and carry things wildly from one room to another. Strangers did not come to the home often, and he was not accustomed to them. When his mother took Robert to market with her, he would grab merchandise—such as fruit and other small articles—from the stores and hide it in his pockets. He had been repeatedly spanked for doing this, his mother said, but with no effect.

An additional difficulty had developed since Robert's tonsil and adenoid operation. He awoke every night, seemed to be very frightened, and kept crying out "Someone is coming." The night he was in the hospital following the operation was the first night he had ever been away from his mother.

Psychological test results.—Robert was given a Merrill-Palmer test on his first visit to the clinic. He had to be urged to take the test and was not very co-operative. He frequently refused to do as asked, and ran out to his mother repeatedly. He was very distractible, looking up at every noise, and showed no persistence about finishing tests. However, he was friendly and rather mischievous with the examiner, laughed and conversed freely, and appeared to enjoy some of the tests very much. He handled his material well, understood directions easily and responded rapidly when interested; his speech was well-developed and he had a good vocabulary for his age, despite the fact that he came from a bilingual home. The test results indicated a mental age of 47 months for a chronological age of 48 months.

Two months later, when Robert returned to the clinic, an effort was made to give him a Stanford-Binet test, but he became so inattentive and unmanageable that a satisfactory test could not be completed. The attempt was finally abandoned when Robert persisted in spitting into the examiner's face.

On a Stanford-Binet test given Robert after the case had been under treatment for about six months, however, his behavior showed tremendous improvement. He was much more co-operative, persistent, and emotionally stable; there was no unusual distractibility or restlessness. The test was completed very satisfactorily, and he was found to have an IQ of 114, which classified him as of superior intelligence. On a recent Stanford-Binet test, given when he was eight years, ten months old, he achieved a mental age of ten years, five months, which yields an IQ of 118.

Outstanding factors and general objectives of treatment.—The obvious factors causing difficulties in this case were the parents' poor and inconsistent methods of discipline, their ignorance of principles of child training, the mother's overemotionality, excitability, and impatience, and the father's somewhat aloof but also impatient attitude toward his children. It was also apparent that Robert was an unusually active, energetic child and that he had insufficient outlets for his energy; he greatly needed more wholesome, outdoor play and more playfellows of his own age. The general objective of treatment was to educate the parents to a better understanding of Robert and to wiser methods of dealing with him.

Specific recommendations as formulated by a staff conference following the initial examination.—1. Robert should be given outlets for his energy by providing opportunities for more active, outdoor play.

2. His "wildness" in the presence of strangers and his sleep disturbances are probably attention-getting devices and should be ignored.

3. The parents are to be gradually inducted into better methods of child training. They should at first be especially urged to talk less, to use mild punishments if necessary, and to use them consistently, and not to punish when they themselves are angry.

4. In regard to Robert's habit of taking things from stores, it would be well to explain to him why this must not be done, and to give him occasional pennies with which to buy something for himself.

Progress of treatment.—These suggestions, explained in great detail and with concrete illustrations, were given to the parents by letter and by the Infant Welfare workers who were in contact with the family. At first, some slight improvement was reported, but when Robert returned with his mother to the Institute clinic a few months later, the mother complained that he was just as difficult as ever; the only improvement she reported was that he had stopped taking things from stores. She had made it a point to provide more opportunities for play with other children but he was so pugnacious and annoying to them that satisfactory play was impossible. The mother had become convinced, however, that her son's behavior was her own fault, and she recognized the need for changing her own behavior and learning to deal with him calmly. This made Institute workers hopeful that this case would improve under treatment.

Intensive treatment.—It was decided that Robert's case should be taken on by the Preschool Department of the Institute for ntensive treatment. For about eight months a psychiatric social worker visited both the home and the school frequently. Gradually, definite improvement was secured in regard to all of Robert's problems, but there were many lapses, when the mother would again fall into her old, bad habits of handling him and he reacted by behaving so badly that she would be in despair about him again. The father could be seen but rarely, because he was away from home so much; he proved to be very intelligent in his understanding of the Institute's suggestions, but was so disturbed at his inability to find work that he found it difficult to be gentle and patient with his children.

The history of Robert's school adjustment would furnish a very interesting chapter, could it be reported in detail. The first day he attended kindergarten he was a little shy, and was quiet and cooperative. By the next morning he felt "at home" and kept the schoolroom in uproar and turmoil all day long. The teacher doubted that they could allow him to remain in kindergarten. On the third day when his father brought him to school his teacher appealed to Robert's pride, urging that he behave well in school so that his father might have good reports of him. They had no serious difficulty with him that day, nor thereafter. They found it

necessary to keep him very busy, but within a short time his teachers considered him a fine, intelligent, well-behaved child. Before the end of the school term they considered him their "best pupil."

The following summer, since Robert seemed reasonably well adjusted at home and very well adjusted at school, the Institute discontinued its intensive service on this case; this was about a year after the original examination. Since then, for the past four years, only occasional contacts have been maintained with this family by the Institute. In general, Robert has been no problem either at home or at school. Whenever his mother has felt baffled by some special problem, she has asked the help of the Institute. Once—for a time—Robert took to bringing things home from other people's houses. They were always things that interested him; he made no effort to conceal them, and would always return them when this was insisted upon by his parents. At another time, when another child in the neighborhood who had great sex interest and curiosity began trying to interest Robert in sex and sex-play, the mother asked help in giving him proper sex education. The Institute lent her books for this purpose and discussed various aspects of the question with her. On still another occasion, Mrs. M sought the Institute's guidance in dealing with Robert's temper spells, which she felt were growing somewhat difficult. Mrs. M also occasionally asked for advice in regard to the training of Robert's younger brother.

A worker from the Institute has visited Robert's school about once a year to check on his progress there. When he entered first grade, he was a little difficult to handle because he was generally mischievous, but he soon adjusted very well and was not at all difficult to manage. Since then his progress has been very satisfactory, both as regards scholastic achievement and behavior in school.

Present status of case.—Robert is now almost nine years old and is in high third grade at school. His teacher considers him a good scholar, and he presents no problems in school at the present time. He is interested in his studies, takes books from the public library, and seems to enjoy reading. He appears to get on well with the other children and to be accepted by them as one of the group.

The parents do not feel that Robert presents any difficulties at the present time. The only behavior which troubles them a little is Robert's tendency occasionally to be something of a "show-off" or "smart-aleck." This has also been observed at school and by Institute workers. Robert is bright and he is aware of his own abilities—sometimes unpleasantly. The parents are anxious to overcome this tendency; they realize that it will make their boy unpopular as he grows older. The Institute is now trying to help them with this difficulty.

Comments.—This case illustrates that type of clinic service which is defined in chapter iii as *intensive treatment*. In many cases intensive treatment represents more varied and complex work on the part of the Institute, including the adjustment of other family interrelationships and problems, as well as those of mother and child, but in the interests of brevity a fairly simple case has been presented here.

JOHN S—A CASE ILLUSTRATING ADVISORY CLINIC SERVICE; A PROBLEM OF READING DISABILITY

Initial statement of problem.—John's parents brought him to the Institute early in 1930 because he failed to adjust satisfactorily to the first grade in school, which he had entered several months before coming to the clinic. They had felt, prior to his school entrance, that he had normal intelligence; in fact, they had thought that the curiosity he displayed in his questions concerning the world about him and the ingenuity he showed in creative play activities perhaps indicated a rather unusual degree of mental alertness. During his first few months in school, however, a general attitude of irresponsibility and dissatisfaction at home and at school became very obvious; there was a marked lack of concentration in regard to his school work, and an apparent inability to learn; nocturnal enuresis became an acute problem.

Family background.—Both of John's parents were American-born and college graduates; they were in comfortable financial circumstances. His father was the head of a large manufacturing plant; his mother had taught music before marriage. The history of both families was negative as to mental or nervous diseases. There were three younger siblings—a sister about two years

younger than John and twin brothers two years old. The family lived in a pleasant, residential section of Chicago where a roomy house and a small yard provided adequate play space for the children.

The parents appeared to be happily married; they agreed in their ideas regarding child-training and in the methods of discipline which they used for their youngsters. Both father and mother were very intelligent and showed it in their attitudes toward their children and their general methods of dealing with them, but appeared to need some help and guidance in regard to disciplining them.

Developmental and health history.—John was a full-term, normally delivered baby; his mother's condition during pregnancy was excellent and he weighed about nine pounds at birth. There was nothing unusual in his developmental history, except that he had developed quite a vocabulary earlier than most children and talked plainly from the first. There had been no problems of habit-training except nocturnal enuresis; daytime bladder control had been achieved before the age of two. A physical examination, as indicated by the family's pediatrician, revealed excellent health, except for slightly enlarged cervical glands; later, his tonsils were removed; John had had none of the children's diseases except a slight attack of whooping cough.

Personality and behavior.—John was a sturdy lad, six years and eight months old, who appeared to be in robust health; he had blonde hair and mischievous brown eyes and his appearance and general manner, when seen at the clinic, did not indicate unhappy maladjustment. According to his mother's statement, he had always been a very happy child until he entered the first grade. All through kindergarten he had appeared well adjusted; the only difficulty reported there was a tendency to left-handedness which his kindergarten teacher had insisted upon trying to correct. He formerly used to concentrate for long periods of time upon constructive play activities—building things and making toys with the aid of his tools and work bench. Of late he had changed, and had begun to flit from one thing to another, apparently no longer able to amuse himself. Along with this, his parents observed a

growing dissatisfaction on John's part with things both at home and at school. He showed jealousy of his younger sister and seemed to delight in tormenting her; he would not get dressed in order to get to school on time; nocturnal enuresis and thumb-sucking, which had never been entirely eliminated, had become regular nightly occurrences.

The parents' decision to bring the child to the Institute was made when, in addition to the above difficulties, the teacher reported unfavorably on John's disturbing school behavior and failure to learn. The mother herself had observed John's tendency to reverse letters when he tried to spell words—mistaking "stop" for "pots," and the like. His teacher complained that he was a disturbing element in school. At first she appeared to think that he "could concentrate and apply himself if he wanted to." As time went on and he had learned to recognize less than a dozen letters when other children in the class had mastered the entire alphabet, however, the teacher began to question the child's intelligence and to think that he was a mentally retarded—perhaps an actually subnormal—child.

Psychological test results.—In view of the teacher's feeling that John might possibly be a retarded or subnormal child, it was interesting to find that on a Stanford-Binet intelligence test he achieved an intelligence quotient of more than 120 and a mental age of over 8 years. He adjusted very well to the test situation and co-operated pleasantly. His language ability was outstandingly high, as was also the quality of his responses to most of the tests. He even passed one test on the twelve-year level. He appeared to have good powers of self-criticism and knew when he was failing tests, but showed a tendency to "bluff" in order to avoid having to face and admit failure.

Because of John's reversals in spelling and his difficulty in learning to read in spite of the test indications of superior intelligence, further educational achievement tests to determine his abilities along various lines, especially tests for possible special reading disability, seemed indicated and were recommended. The findings of these tests revealed such a reading disability. John was found to be retarded in reading more than a half year below his

chronological age and more than two years below his mental age; his spelling ability was on the same low level of his reading ability, while his arithmetic achievement was normal for his chronological age but not up to the possibilities of his general mental level of development. John co-operated well and seemed eager to please on tests not involving reading but showed emotional disturbance when faced with reading tests.

His lack of progress in reading seemed to warrant further study and analysis to determine, if possible, any particular factors in his mental make-up which might be interfering with his normal or expected progress in learning to read. John was, accordingly, given a series of analytic reading tests designed to bring out his specific difficulties with reading. His tendency to reverse forms, letters, words, and numbers appeared repeatedly. While almost all children make occasional errors of this type in reading, John's reversals were so numerous as to constitute a decided handicap in his learning to read. On tests of handedness a similar confusion between the right and left hands was obvious, and he showed both right- and left-handed characteristics. In dealing with sounds orally, however, he could combine them in word building as well as other children of his mental age.

Outstanding factors and general objectives of treatment.—It seemed very apparent that the outstanding cause of John's difficulties was a special reading disability which was producing school failure, emotional disturbance, and behavior problems. He faced constant failure in school; emotional reactions to reading were set up; he became apprehensive and antagonistic to school; his emotional disturbance was reflected in his behavior at home, and he compensated for his feelings of inferiority by teasing and dominating his younger sister and brothers. It seemed probable that the continued thumb-sucking and nocturnal enuresis were at least indirectly related to his feelings of inadequacy, and the general emotional disturbances set up by his school failure.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. Special tutoring in reading is recommended—the Institute to select a qualified tutor and to advise regarding the methods of remedial instruction to be used.[1]

2. General and specific suggestions should be given the parents to improve certain methods of child training and discipline which they have been using. Spanking, especially, should be avoided in John's case.

3. For the undesirable habits of thumb-sucking and enuresis the parents are urged to avoid all shaming or punishments, and to try rather to *gain the child's co-operation in overcoming these habits*. Effort should be made to arouse *his own desire* to stop these habits and to offer to *help* him overcome them. For example, it is suggested that his parents might *offer* a mit to be put on his hand when he goes to sleep, explaining to John that, if he should forget and start to put his thumb in his mouth, he will be reminded by the mit that he is going to try to keep from sucking his thumb.

His co-operation in stopping the nocturnal enuresis should be sought by discussing with him (since he is a very intelligent child) the amount of water he drinks in the late afternoon and evening. Rewards that are definitely related to the problem may be offered—for example, he can be told that the coveted joy of trips out-of-town with his father may be his when he has stopped wetting the bed, because while the habit persists it would be embarrassing while traveling to wet the bed in a hotel or in some friend's home.

4. His dawdling in getting dressed and getting to school on time will probably disappear when his school failure is overcome; meanwhile, small rewards may be used for incentives to "speed-up" occasionally. In general, he should learn to accept being ready on time as his own responsibility.

Progress of treatment.—The private tutor began remedial instruction in reading immediately following the Institute examination. Arrangements were made with the school to excuse John from their afternoon session and to substitute private instruction for that period. Re-examination at the Institute after only two months of such remedial work showed that John had improved

[1] The remedial methods used in this case were, in general, those described in the pamphlet, *Suggestions for Remedial Instruction in Reading*, by Dr. Marian Monroe, under whose supervision the special instruction in this case was carried out. This pamphlet is published by the Institute for Juvenile Research.

remarkably in almost all tests given. During two months of half-day tutoring, he had made an average gain in reading equal to five months' achievement (based on the usual first-grade progress). He showed marked improvement in arithmetic due to improved ability to read the numbers. His spelling was still poor and there was still a marked tendency toward reversals. Since it is obviously impossible for a child in the usual public-school situation to receive the individual attention necessary to overcome such special difficulties, continuation of private tutoring on the half-day arrangement was advised. The school teacher at this point was not co-operative in regard to these special arrangements, so John was taken out of school by his parents; his day was filled by half-time private instruction and by enrolment in a play group.

Tutoring was discontinued during the summer in order that John might go to the country. Retests the following fall indicated that he had lost practically none of the ground gained earlier, but since his reading was still not up to second-grade level his parents placed him in a private boarding school where more individual teaching might be included in his regular school program. The teachers there were given the reports and remedial teaching recommendations of the Institute and John continued to make excellent progress. During his first three months in this school, John made more than a year's gain in reading; his reading achievement rising from the level of mid first grade to that of high second grade. All his special types of errors decreased and a marked improvement was noted in his general attitude of greater confidence and enjoyment in reading.

His ability to concentrate improved considerably during his year away at school; he adjusted very happily in the new situation; dissatisfaction, irresponsibility and dawdling did not appear as problems there; thumb-sucking disappeared almost entirely; nocturnal enuresis was eliminated for long periods of time but there were occasional recurrences. On his week-ends and vacations at home, John got along better than formerly with his younger siblings.

At the end of his year in the private school, John was re-examined at the Institute and the results indicated that special

instruction was no longer necessary. It was felt that he could now re-enter a public-school situation with the expectation of a satisfactory adjustment there. During the year and a half since his first examination, John had made nearly three years' progress in reading. His reading ability, although still not quite up to his mental age, was in advance of his chronological age and a little superior to his spelling and arithmetic achievement. In all his subjects he was now on a third-grade level.

The following autumn he re-entered the Chicago public school in which he had started two years before. A kindly and very understanding teacher helped him to readjust quickly, and within a couple of months he was doing third-grade work of excellent quality. His adjustment to other children and his behavior at home were very satisfactory. Enuresis occurred rarely, and was usually obviously related to some emotional upset.

Present status of case.—John is about to enter fifth grade and is doing very satisfactory work at school. No special home or school problems are apparent. His "quarrels" with the younger children in the family are only such as occur among almost any siblings in the close relationships of daily living and playing together. Once in a great while nocturnal enuresis occurs if John has some upsetting experience.

Comments.—This case affords an interesting illustration of the "advisory service" given by the Institute to intelligent parents who are able intellectually and financially to solve the difficulties of their children if adequate guidance is available for them from specialists in the study and treatment of children's problems. Research of recent years has revealed the fact that many children who have adequate general intellectual ability fail to make a successful reading adjustment in school. About four or five children in a hundred, even though enrolled in good schools where excellent methods of teaching primary reading are used, are likely to encounter some special reading difficulty. They are not to be regarded as subnormal or defective in any sense; they often rate "very superior" on intelligence tests; they are only exceptional in that they do not acquire the reading process by the same methods and as easily as does the average child.

Cases of reading disability vary greatly in severity. In some instances of acute difficulty, the children may remain total non-readers even after many years of ordinary class work. In less severe cases, progress through school comes slowly, with occasional repetitions of school grades. Some children with mild reading disability fail only the first grade or two, manage to acquire reading ability in time, and are able to progress satisfactorily thereafter. In almost all cases, emotional reactions to reading are set up. Psychologists have long recognized that special disabilities tend to create feelings of inferiority even more than does general inadequacy. A child whose reading achievement fails to measure up to his *expected* achievement (based on his chronological age, his mental age, and his other educational achievements) tends to become apprehensive, indifferent, or antagonistic to school. One cannot succeed in present-day school education—or in present-day life, for that matter—without the ability to read. Symptoms of feelings of inferiority and frustration appear in various types of behavior and personality problems. In order to prevent failure and its attendant personality effects, it is desirable to make as early a diagnosis as possible and to apply remedial techniques at the first indication of trouble in learning to read. Each case requires individual study and analysis in order to determine the particular types of errors which are causing the reading difficulty.[2]

John's case affords an excellent illustration of incipient school failure, personality difficulties, and behavior problems resulting from a special reading disability. It is very fortunate that his handicap was discovered and treated shortly after he entered school, in time to be overcome before really serious personality maladjustments and school failure developed.

TOM T—A CASE ILLUSTRATING CO-OPERATIVE CLINIC SERVICE; A FEEDING PROBLEM

Initial statement of problem.—Just before Christmas, 1931, Tom was referred to the preschool clinic of the Institute by the Infant Welfare Society of Chicago. He was then three years and four months old and was a severe feeding problem. This difficulty had begun in infancy; at two months of age he began regurgitating food. At the time he was referred to the Institute, it had become his custom to sit at the table throughout the meal without eating, apparently utterly indifferent to food. Not all his mother's coaxing and nagging, nor his father's threats and punishments could induce him to eat. Infant Welfare workers, in more than three years of effort on the case, had not been able to overcome Tom's feeding difficulties. His younger sister and brother were beginning to imitate his behavior at meals. When the parents finally insisted that they had reached the limit of their endurance and could no longer tolerate the child's refusals to eat, the Infant Welfare nutritionist suggested that Tom might be sent away from home temporarily for a period of retraining in food habits. Upon the parents' willingness to consider this plan, the case was referred to the Institute for Juvenile Research for examination and advice regarding placement.

[2] A detailed report on reading problems and their treatment will be found in *Children Who Cannot Read*, by Marion Monroe, Behavior Research Fund Monograph (University of Chicago Press, 1932).

Family background.—Tom's father was foreign-born and the mother was of foreign-born parentage. Mr. T, the father, had a few years of schooling abroad, came to the United States in his late boyhood, and had worked at various kinds of unskilled labor. For a year before the Institute came to know him, he had been unable to find steady work, and for six months had had no work at all. He seemed to be fairly intelligent and a fundamentally kindly person, but he was very depressed about being unemployed, had become impatient, irritable, and quick-tempered, and was especially "mean" to Tom. He frightened the child constantly with threats of punishment.

Mrs. T, although she was a graduate of an American elementary school, appeared to be much less intelligent than her husband. He was impatient with her inadequacy as a mother and a home-maker. On the other hand, she had married against the wishes of her parents, who considered her husband socially inferior to her; this resentment of her parents and her husband toward each other had never been overcome, and she was obviously disturbed and unhappy about it. All these tensions had been increased by the recent economic stress in which she and her husband were suffering both physically and mentally.

There was a little sister only fifteen months younger than Tom, and a baby brother six months old. Tom had been welcomed happily by his parents, but the two younger children had not been wanted because of the family's economic plight. As if unconsciously reproaching themselves for having thus "rejected" these two little ones, both parents tended to be oversolicitous and overprotective toward them, with the result that Tom was treated with disproportionate severity and was often compared unfavorably with the younger siblings. The fears of the parents that they might have more children whom they could not support were creating severe tensions between them in regard to their sexual adjustments.

Developmental and health history.—Tom had been under the supervision of Infant Welfare workers since birth. Because of his feeding difficulties he had never been a well-nourished child, and had had a number of illnesses—whooping cough, measles, influenza, earaches, and tonsillitis; he had frequent colds and was reported to have vomiting and fainting spells when he "cried too hard"; one convulsion had been reported. There was nothing unusual reported in his developmental history or in his habits other than eating; his physical condition, when Tom was seen by an Infant Welfare physician at the time he came to the Institute, was only fair, and a tonsillectomy and adenoidectomy had been recommended.

Personality and behavior.—Tom was a friendly, attractive child with a bright smile. He was quite independent and accepted responsibilities for himself, but seemed to appreciate affection. He was physically active and interested in games and toys, played well with other children, and was generous with his playthings. The only serious problem Tom presented was the feeding difficulty.

Psychological test results.—On his first visit to the clinic Tom was given Merrill-Palmer and Stanford-Binet tests. On the former his performance was rather inferior. He co-operated readily, appeared to enjoy the "games" thoroughly, and showed excellent persistence, but was rather slow in comprehending what was wanted and had poor form discrimination. On the Stanford-Binet test, he achieved an IQ of 100, in spite of the fact that he obviously

did not like the verbal tests, had somewhat infantile speech, and was rather distractible.

Outstanding factors and general objectives.—An analysis of this child's situation revealed many factors directly and indirectly related to the feeding problem which he presented. Underlying all of them was the terrific economic problem of a family who had no security in regard to even the minimum essentials of life—food, shelter, and clothing. Under this strain and the disheartening effects of compulsory idleness, the father was becoming increasingly depressed and irritable, and was unintentionally "taking it out" on his wife and children, especially upon Tom. He was disgusted by Tom's refusal to eat and, in general, tended to regard him as a "coward" and a "sissy." He tried by "bullying" the child to make him "more of a man" and sometimes even knocked him down in a burst of temper.

The mother seemed rather dull and was quite inadequate both as a home-maker and a mother; added to these was her "nervousness" due to her husband's irritability, the strain of their sexual maladjustment, the conflict between her parents and her husband, and the constantly harassing financial need which had persisted for nearly a year and for which there was no real relief in sight. As a result, her handling of the children was very bad; discipline was inconsistent and often very harsh.

The original rejection of the two younger children and the parental tendency to overcompensate by constantly comparing Tom unfavorably with them gave rise to jealousy of the younger ones on his part, so that his refusal to eat may have been an unconscious play for parental attention and solicitude. It also seemed probable that some of Tom's lack of interest in food was due to the inadequacy and unattractiveness of the food under the rations which the family were receiving from charity.

The brighter side of the picture was that both parents seemed genuinely fond of their offspring and willing to co-operate with the social agencies in plans for the welfare of the children.

Obviously, general objectives of treatment in this case called for efforts to increase the economic security of the family, to bring the parents to a better understanding and appreciation of their

children, to help them learn to use better methods of dealing with Tom's problems, and to give whatever assistance seemed possible toward reducing the tensions and maladjustments in all the family relationships.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. Institute worker to visit the home to learn more about the general family situation, especially the father's attitude toward Tom.

2. Institute psychiatrist to have a series of interviews with the father and the mother in an attempt to change their attitudes and practices regarding Tom's feeding problem, and to help them with their own difficulties.

3. Infant Welfare nutritionist to continue her visits to the home to give instructions on the better management of the household and advice on habit training of the children.

4. Institute worker to contact the maternal grandparents and to try to get their co-operation in helping the family.

Progress of treatment.—During the next couple of months a psychiatric social worker of the Institute visited the home a number of times; both parents were interviewed by the psychiatrist; and the Infant Welfare worker continued her visits to the home, making special efforts to improve the mother's food budgets and methods of preparing and serving the family meals. Through all these contacts and through letters sent to the parents so that suggestions might be constantly available for them, only a slight improvement in their methods of handling Tom's feeding difficulties was secured. The Institute worker contacted the relief agency on the case and secured a larger food allowance for them; the worker also took Mrs. T to a clinic for a physical examination, but the clinic reported negative physical findings and indicated that her "nervousness" was due to worry over finances. The maternal relatives were visited by the Institute worker and efforts were made to secure a more friendly and helpful attitude on their part toward Mr. T. Since it is a public agency, the Institute takes no action on questions involving birth control, but the mother herself sought the help of a birth-control clinic after she learned that

her husband was avoiding all demonstrations of affection for her because he was afraid of having more children.

At a joint conference of the several agencies working on this case, it was agreed, after about two months of rather ineffective efforts such as described above, that it would be necessary to remove Tom from his home for a period of intensive retraining in food habits, before any considerable improvement could be accomplished. A child-placing agency agreed to put him in a child-caring institution where he could be part of a small nursery-school group for a period of about three months, and the other agencies agreed to concentrate on the family problems while Tom was away, so that when he returned to his home it would be to a better situation. This institutional placement was considered preferable to foster-home placement in this case for several reasons—Tom would probably learn to eat by being with other children who were eating; he would have the much-needed experience of playing with children of his own age; the father and mother would have the opportunity to observe the techniques used in the nursery-school; and the parents would probably co-operate better in a plan which put their child in an institution than in one where he was put into another private home.

Tom adjusted very quickly to his new environment. After his first day he presented no feeding difficulties. He was very happy and contented there. When his parents and grandparents visited him, he appeared to enjoy their visits but did not ask to be taken home. The parents, however, insisted that they missed him terribly, and as soon as they saw that he was eating satisfactorily they constantly begged to be allowed to bring him home.

While Tom was in the nursery school, a concerted attack upon the family problems was made by all the co-operating agencies, under a plan outlined by the Institute. The father and the mother had a number of interviews with the psychiatrist; both were taken several times to observe Tom in the nursery school and the methods of handling him were explained to them both by the nursery-school teacher and the Institute worker. The maternal grandparents were seen again; everything which the agencies were trying to do to help the family situation was interpreted to them and

their co-operation was sought. The Infant Welfare nutritionist kept constant supervision of the family's food requirements, helped the mother to budget, outlined an adequate diet, and directed the preparation and serving of the food.

With the help of their relatives, the family was moved to better living quarters with a yard for the children to play in. Repeated efforts were made to secure work for the father, but with no success other than an occasional day of "odd jobs" here and there.

Tom remained away from his family a little more than two months. The tonsil operation which had been recommended was performed before he returned home. Careful supervision was maintained by the Institute during his first week at home to see that the transition was made without losing what had been gained during the two months away. The Institute worker was present frequently at meal time to guide the parents in handling Tom so that parents and child would not fall back into the old behavior patterns and the acute feeding problems reappear.

During the months following Tom's return to his home, the Institute maintained frequent contacts with the family through the parents' visits to the clinic for interviews with the psychiatrist and through occasional visits of the social worker to the home. The following autumn the Institute made application for Tom and his younger sister to attend a nursery school where they would daily, from nine to three-thirty o'clock, have the advantages of an excellent educational environment, good habit training, and play with other children of their own ages; through the parent-education program of the school, Mr. and Mrs. T would also receive constant help in the handling of their children. The long waiting-list of the only nursery school within reasonable distance of their home made prompt admission impossible, but they have recently been enrolled.

Present status of case.—The father is still unemployed and his irritability and bitterness increase with this ever lengthening period of devastating idleness. Strenuous efforts are now being made to secure "artificial employment" for him, since the family is constantly receiving relief funds anyway, but thus far even this does not seem to have been possible. His constant presence in the

home, with his critical dissatisfaction in regard to his wife's methods of keeping house and handling the children, is a source of mutual tension and irritation between them, and tends to increase her "nervousness." While at times their relationship has improved with psychiatric help, no permanent improvement in their marital adjustment appears to have been accomplished.

Both parents have improved considerably in their handling of the children. The mother provides much more adequate meals for the family; she keeps a cleaner and more attractive home; there has been no recurrence of Tom's acute feeding problem, and the relationship between him and his younger sister and brother is happier than it was.

The attitude of the maternal relatives is more kindly and the relationship between the two families is more friendly than formerly.

Comments.—Tom's case, like many others, is one in which an acute feeding problem is only one obvious symptom of many serious maladjustments and inadequacies in a child's whole family situation. The degree of success which has been achieved in this instance illustrates what can be accomplished through the co-operative efforts of several agencies when they formulate an integrated plan for concerted joint action in the case of a family whom all are trying to help. The limitations in regard to what has been accomplished in this case, however, are obvious; they arise, for the most part, out of fundamental factors inherent in the situation over which social agencies, at the present time, have very little control.

Repeatedly, in the course of his interviews with psychiatrist and social workers, the father has exclaimed, "If you really want to help me, just get me work!" Although some of Mr. T's personality difficulties probably had their origin back in his own childhood, with a father who was abusive toward him and a mother who tried to compensate by being overindulgent, much of his difficult behavior toward his wife and children has been directly due to his bitterness and desperation over his inability to get work, and his humiliation and resentment at having to accept "charity." The economic depression is taking its toll in the mental health and

personality adjustments of countless men and women; the social agency—even the psychiatric clinic—can do little to counteract the devastating effects of these long periods of unemployment.

It seems almost futile to hope through psychotherapy to bring about a happier relationship between this husband and wife as long as they live under their present economic stress and strain. Although their methods of handling their children are much better than when they first came to the clinic, the children, too, will continue to suffer as long as the present tensions and strains of their family life persist. It is the opinion of the workers who have co-operated on this case, however, that were steady employment of this father possible, most of the problems of these parents and children might be rather satisfactorily adjusted. Perhaps recovery from the present economic depression, if it comes soon enough, may make a test of this belief possible.

GEORGE W—A CASE ILLUSTRATING CO-OPERATION OF A NURSERY SCHOOL AND THE INSTITUTE; PROBLEMS OF HEALTH, HABITS, AND BEHAVIOR

Initial statement of problem.—George was referred to the Preschool Department of the Institute by the Infant Welfare Society of Chicago in the early spring of 1928, when he was three years and nine months old. He was a plump, well-developed, healthy-looking boy with a pleasant, friendly manner, but the problems for which he was referred to the clinic were convulsive attacks, masturbation, and the fact that his mother found him very difficult to manage. Nocturnal enuresis was reported to be a problem occasionally, usually preceding the convulsive attacks. There were also mild speech difficulties in the form of slight stuttering and lisping.

Family background.—George was one of two children; the other was a girl three and a half years younger. Both parents were of Italian origin and the father was foreign-born. However, he had had a grammar-school education in this country so that he spoke and read English well. His health was good. He was a skilled carpenter and was able to support his family quite adequately. He was very companionable with his little son; he often spent his evenings playing with George, reading stories to him and drawing

pictures for him; on Sundays he frequently took the little boy for walks.

George's mother also had a grammar-school education and had worked as a seamstress and a saleswoman before her marriage. She was twenty-five years old when George was born; her husband was five years her senior. She seemed rather intelligent, except in her handling of George, whom she was quite unable to manage. She felt that she must be to blame for her difficulties with him because he "minds his father and my mother much better than he does me." She was chagrined at her inability to control him, and admitted that she scolded and nagged constantly. She was also greatly worried about his convulsive attacks.

The family history of both parents was reported to be negative for nervous and mental diseases, with the exception of a maternal uncle who was a mental patient in a state hospital; the paternal grandfather, who was dead, was said to have been a very heavy drinker.

The family lived in a congested, foreign neighborhood; they had a five-room flat; the yard of the grandmother, who lived nearby, was available for outdoor play for George. Mr. and Mrs. W had very little social life beyond occasional visits to relatives. Mr. W was domesticated in his interests and was very helpful about the house.

Developmental and health history.—There was nothing unusual reported in the facts of George's birth nor in his developmental history. However, he had been under the care of the Infant Welfare Society since he was a month old, and their health history and report of physical examinations revealed several physical difficulties. There was evidence of slight rickets—although the mother had been advised to give him cod liver oil—in "flaring ribs and a pigeon breast," knock knees, and "pot belly." George was especially susceptible to colds; he had enlarged and infected tonsils, and a persistent cough. The history of illnesses revealed otitis media at twenty months, measles at the age of two, whooping cough and bronchitis about six months later, constipation, occasional "nervous attacks" with fever, and convulsive attacks occurring every three or four months.

The recommendations of the Infant Welfare physician who examined George included postural care, circumcision, cod liver oil, special attention to diet, violet ray treatments for the bronchial cough, and the removal of tonsils and adenoids. The Infant Welfare nutritionist complained that, in spite of all their efforts, George received a very poorly balanced diet with much starch and candy (the latter often given him by his grandmother). In spite of these difficulties, George appeared to be a well-developed, well-nourished child in good general physical condition.

Personality and behavior.—George, when observed by the psychiatrist at the clinic, was active and restless; he jumped from one thing to another, whined a great deal, and constantly demanded the attention of his mother. He tried masturbating, watching his mother apparently to see what she would do about it. Slight speech difficulties were apparent; however, he appeared to be bright, and was not unfriendly.

The mother reported that George presented many personality and behavior problems at home. He was very negativistic, persisting in doing the opposite of what his mother asked. He whined and teased for what he wanted; he sometimes had temper tantrums in which he would throw himself upon the floor and tear things up. He was very active and restless, would not play alone, and jumped from one activity to another with a very brief attention span. He was extremely dependent on adults and constantly demanded attention. He was restless in his sleep at night, bit his nails, and masturbated. His mother remarked that he never masturbated when his father was at home, but that the only way she could get George to stop was to "threaten to have his penis cut off."

George liked to play with other children, but did not get on with them and sometimes would bite them. He appeared to be fond of his younger sister; he liked to plan what they would do together when she grew older; he showed no jealousy of her except when the baby was nursing.

The mother was especially concerned about George's convulsive attacks. The first one occurred when he was eighteen months old, a second six months later, and after that they continued at intervals of three or four months. Her description of an attack was as follows:

> About two weeks before the attack, nocturnal enuresis occurs, constipation becomes worse, his eyes look shiny and drawn and he is more irritable and harder to manage. The day before an attack, he starts running a temperature and his urine is milky. The attacks begin about ten o'clock at night, after the child has been asleep two or three hours, and he has from three to six attacks about two hours apart. He first draws up his arms and legs, rolls his eyes, twists and turns. After about ten minutes, he stretches out rigidly, foams at the mouth, and is unconscious for about half an hour. He cries out as he comes to, has difficulty in talking, and cries for his father but does not recognize him. George urinates during the attack but does not lose control of his bowels.

The mother herself was under the impression that the attacks always occurred after George had eaten too many bananas or too much candy. The parents had taken him to a number of doctors; one had said "worms" caused the attacks. His mother felt that symptoms of an on-coming attack were evident at the time of the Institute visit.

The mother admitted that she did not know how to manage George. Her most successful method of getting him to do what she wanted was to threaten that his father would stop loving him or would not play with him. All of her methods of control and supervision were unwise and ineffective; she preferred to leave the discipline of George to his father whenever Mr. W was at home because the father had little difficulty in handling him. Sometimes Mr. W used corporal punishment for George but his most effective method of control, according to the mother, was to tell George that he would cease to like him.

Psychological test results.—On his first visit to the clinic George was given a Stanford-Binet test. At first he responded quickly and co-operated well, but as the test progressed he lost interest, became restless, frequently got up from his chair and said, "I don't want to answer any more questions." He was somewhat distractible and lacked persistence. Finally he began to say "I don't know" to most of the tests. In spite of this behavior, the results indicated a mental age of 4 years, 6 months, with a chronological age of 3 years, 9 months, which yielded an IQ of 120.

Subsequent Stanford-Binet examinations, one given eight months later and another given twenty months later, confirmed this intelligence quotient with IQ's that varied less than five points. In these later tests, his behavior improved; restlessness continued, but his attention span increased at each succeeding examination.

Outstanding factors and general objectives of treatment.—The most obvious factors that were causing difficulty in this case were the mother's unwise methods of handling the child, her poor emotional attitudes, lack of supervision of the child's diet, and the inadequate outlets for the abilities and energies of a child with high intelligence. General objectives of treatment obviously had to include efforts to develop in the mother more objective attitudes toward George and wiser methods of handling him.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. Proper regulation of the diet is one of the most important objectives in this case. The psychiatrist is of the opinion, from the mother's description of the attacks and the evidence of fever and persistent constipation in connection with the attacks, that they are not of an epileptic nature, but are rather due to digestive disturbances or periodic gastro-intestinal upsets. However, further information about the attacks will be necessary before a definite diagnosis can be made, and it would be well to hospitalize George for a brief period of observation at the time when his mother thinks an attack is going to occur. The Infant Welfare nutritionist will continue to work with the family on the diet problems and to secure further reliable facts regarding the convulsive attacks.

2. The Institute worker is to try to get George enrolled in a nursery school. This would offer him opportunities to direct his energies into more wholesome channels, would provide needed companionship with other children, and help his mother to learn better methods of managing her children.

3. The Institute, through contacts of the psychiatrist and psychiatric social worker, will try to improve the mother's attitudes toward her children and methods of child training. Among specific suggestions to be given her are: (*a*) when George masturbates, threats should not be used but he should be diverted casually to some pleasant activities; (*b*) instead of letting George demand her attention all day long, the mother might set aside a definite time each day in which she gives him and his play activities her full attention; (*c*) George should be encouraged to finish any tasks which he starts so that his attention span may gradually be increased.

4. An effort should be made to learn more of the father's attitude toward the child and the family interrelationships.

5. In relation to the speech difficulties, the question of George's right- or left-handedness should be considered. (George was found to have been right-handed always; and the speech difficulty gradually disappeared.)

Progress of treatment.—The nutritionist and the psychiatric social worker both made frequent visits to George's home, and the Institute arranged to have the child enter a nursery school within six weeks after his first clinic examination. Immediate progress was evident in many ways. One convulsive attack occurred shortly after George had been seen at the clinic, but there were no further occurrences. George's general condition also improved with better diet; his cough disappeared after violet ray treatments. Masturbation disappeared.

George adjusted very well to nursery school and presented no special problems there. After he had attended for several months, his mother expressed great satisfaction at the improvement in her boy. She noted increasing independence and found him easier to manage; he had learned to help her in little ways at home; she reported that he no longer "gets on my nerves." The Institute gradually discontinued visits to the home.

After George had been in nursery school about six months, the teacher asked that the Institute again take on this case for active treatment. Although George had adjusted quite well to nursery school when he entered, he was beginning to present difficulties there. Outstanding problems were overdependence on adults, extreme "babyishness," distractibility, severe sleeping difficulties at nap time, nail-biting, and failure to comply with teacher's di-

rections. There were also difficulties in getting on with other children, a tendency to tease them, to be a "tale-bearer," and to disturb group activities. No masturbation and no convulsions had ever been observed in nursery school. The nursery school felt that the mother's standards of behavior for George were not as high as they should be, and they were anxious also that she carry over into the home the methods of handling George which were used in the school.

In a staff conference, it was agreed that perhaps the mother was so satisfied with the improvement in George's most serious problems—particularly the elimination of the convulsions and masturbation—that she was not much concerned about his minor problems and had let down in her disciplinary efforts. It was agreed that the Institute's psychiatric social worker would again take on the case for intensive treatment, would visit the home frequently, and would also get the mother to come and observe George in the nursery school so that she might adopt the methods of managing George which were used by the teachers.

The Infant Welfare nutritionist suggested that the tonsillectomy, which their doctor had recommended but which had not been done, might help to overcome George's distractibility and sleeping difficulties. The mother was finally persuaded to have both a tonsillectomy and a circumcision performed.

In this series of visits to the home which were made by the Institute worker at the request of the nursery-school teacher, special efforts were made to get George's mother to adopt the standards and methods of the nursery school. In regard to each specific difficulty which George presented, the worker discussed with the mother the methods used in the school and explained how they might also be used at home. The chief difficulty encountered in this phase of the treatment was that George's behavior now seemed entirely satisfactory to his family. He had improved so much that they could see no more problems; there was a very evident discrepancy between the home standards of behavior and those of the nursery school. Nevertheless, after several months of persistent effort on the part of the Institute, the nursery school reported great improvement in George's behavior.

Occasional visits to the home were made by the Institute worker through the remainder of the nursery-school term. By the following autumn George was advanced to the kindergarten group of the school. He no longer stood out from the group as being a problem in any way, and the visits of the Institute worker to the home were no longer considered necessary by the teacher.

Meanwhile, the psychiatrist of the Institute attempted, through occasional interviews, to improve Mrs. W's emotional attitudes, especially to overcome her tendency to keep both of her children overdependent upon her. (As time went on, this desire to keep the younger child dependent, also, had become very obvious.) In the course of these interviews, considerable sexual maladjustment was revealed. Although the mother seemed to be fond of her husband, her dislike of sexual relationships and a desire to avoid having more children appeared to be the basis for a great deal of tension between them and for much "nervousness" and complaints of "poor health" on her part. Mrs. W showed great resistance to discussing these problems, however, and did not wish psychiatric help in regard to them. The psychiatrist finally concluded that little more could be accomplished in this case because the mother quite obviously preferred to get her emotional satisfactions from overprotection and oversolicitude regarding her children rather than through the acceptance of a more normal rôle as wife and mother.

Before George left the kindergarten to enter the first grade of a public school, he had improved so far as his most serious behavior problems were concerned. He was still "babyish," however, was more restless, distractible, and dependent on adult help than were other children of his age. The mother's methods of managing him had improved but she still tended to do too much for the children instead of making them independent of her.

Present status of case.—When last seen, George was in second grade and apparently was getting on satisfactorily in school. His health was good, and his mother considered his behavior entirely satisfactory.

Comments.—This case illustrates the reciprocal co-operation of nursery schools and the Institute. In this instance, the school

enrolled George as a part of the Institute's original plan of treatment; the Institute, in turn, at the request of the school, undertook to serve as liaison worker between the home and the school, with the special objective of getting the mother to carry over into the home the methods of child training which were used by the school.

RUTH L—A MENTALLY "GIFTED" CHILD

Initial statement of problem.—Ruth was referred to the Institute's preschool clinic by the Infant Welfare Society of Chicago in February, 1927, at the age of five. She was a well-developed, attractive child with a bright, pleasant manner. The only problems were those which arose from extreme mental alertness. The child was very restless; could not be made to sleep at afternoon nap time but would, instead, recite and tell stories to herself. The father and mother were very intelligent and had been warned against teaching the child material in advance of her age; they wanted advice as to whether or not Ruth should be sent to school; they had just enrolled her in kindergarten, and she seemed to like it. Her parents were also concerned about her tendency to talk back saucily to any adult who corrected her and they wanted help in overcoming this habit.

Family background.—The father was thirty years of age when Ruth was born; he was of Russian-Jewish extraction; came to the United States when a schoolboy and graduated from a Chicago public elementary school. He was described by his wife as a quiet, calm, good-natured man. Later interviews with the father substantiated this; he was a quiet, soft-spoken man, slightly shy but very friendly, and deeply interested in his children and in his home. His formal education had been limited but in his parental attitudes he was very intelligent and sensible. He was inclined to be very lenient with his children; probably a reaction against his own very strict parents whose insistence on extreme orthodoxy in religion, for example, had caused all but the oldest of their seven children to avoid any kind of church affiliation.

The mother was about twenty-five years old when Ruth was born. Two still-births had preceded; one was due to eclampsia of mother and one was a premature Caesarean birth. At the time of her first visit to the Institute clinic the mother was again pregnant; a boy was born two months later. The mother, too, was a Russian Jewess; she had come to the United States in her early "teens," having had five years of schooling in Russia. She completed elementary school in Chicago; she was obviously intelligent, refined in manner, spoke English well, and was a devoted mother eager to do the best possible for her children.

The parents appeared to be very congenial; they agreed in their management of the children. The family history of both was negative as to nervous and mental diseases. Mr. L formerly had a small business of his own but had failed and was working hard as a clerk in a small store to pay off all of his creditors. To help with the family finances, Mrs. L's mother, sister, and brother were living with the L family at the time they came to the Institute. The family was living in a comfortable and adequate six-room apartment with a back porch and a yard for the children to play in, but in a neighborhood where standards were inferior to their own. Their home life appeared to be very pleasant; English was spoken in the home.

Developmental and health history.—Ruth was a full-term baby; delivery was normal; nothing unusual was reported in her early development or habits except unusually early speech development; she was said to have begun talking at six and one-half months and to have spoken quite "correctly" at fifteen months. She had been regularly under the care of the Infant Welfare Society of Chicago from birth; their examinations indicated general good health and development; there were no pathological findings; the child had had measles and whooping cough; a tonsillectomy and an adenoidectomy had been performed.

Personality and behavior.—From both the history and the clinic examination, Ruth appeared to be a friendly, generous child, with a pleasing personality. She was very active and restless; she learned rapidly and was constantly asking questions. She was inclined to "talk back" and be "saucy"; there were occasional displays of temper. Ruth got on well with children who were capable of organized play but was inclined to quarrel with others. She received a great deal of attention because she was obviously

an unusual child, but did not, apparently, demand undue attention.

Psychological test results. A Stanford-Binet test indicated a mental age of 7 years with a chronological age of 5 years, an intelligence quotient of 140; very superior intelligence. Ruth was very co-operative and earnest during the test and her whole performance was on a very superior level; she was successful on three of the language tests of Year VIII level.

Outstanding factors and general objectives of treatment.—This was a child of superior mentality with intelligent, sensible, co-operative parents, who agreed in matters of discipline and were fairly consistent in their methods of handling the child. Their family life was congenial, but they were economically somewhat insecure and the neighborhood in which they lived did not offer the most satisfactory or desirable companionship for children. The rôle of the Institute was to help these parents in the wise guidance of this child who because of superior intelligence and unusual mental alertness would need careful handling and special consideration regarding her educational adjustments.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. An attempt should be made to secure a scholarship for Ruth in a "progressive" school. If this cannot be arranged, she should be tried out in the first grade of a public school in order to give her a more normal outlet for her unusual abilities.

2. Outside interests, such as rhythm classes, are advised, if possible, and it is suggested that the parents might consider moving to a neighborhood which offers more desirable companionship for Ruth.

3. The parents are advised not to insist upon afternoon naps; restlessness would probably disappear when more adequate outlets for child's interests and energies are provided.

4. The mother should give Ruth simple information regarding the coming of babies to "prepare" her for the new baby expected soon.

5. The parents should continue their efforts to avoid undue attention and flattery being given the child by relatives and friends.

Progress of treatment.—Since a scholarship in a special "progressive" school could not be secured immediately, Ruth was tried in the first grade of a public school, but the class was already well launched into the year's program and the work was too difficult for her on this account. She was put back into kindergarten but was given some special first-grade instruction by her kindergarten teacher. Ruth entered first grade the following autumn at the age of five years and seven months; her restlessness disappeared almost immediately after she entered the first grade. She progressed very rapidly through the grades of the public schools, in spite of occasional transfers when the family moved, and in spite of her parents' efforts to prevent too rapid promotion. Upon the Institute's advice they constantly tried to enrich her out-of-school hours with various recreational and cultural activities, thus trying to keep her intellectually satisfied without promoting her too far beyond children of her own chronological age. Nevertheless, Ruth was in high fifth grade at the age of eight and high seventh at the age of ten. Occasionally her teachers themselves tended to "spoil" her by undue attention, praise, or special privileges. The school was visited from time to time by the mother or by Institute workers, and teachers were almost always co-operative in working with the home and the Institute when once their point of view was made known.

The mother brought Ruth—and subsequently the younger brother—to the Institute for further examinations and advice about once a year. Successive Stanford-Binet tests continued to yield high IQ's corresponding very closely to the original 140. Tests of the young brother yielded intelligence quotients above the average (ranging from 110 to 120) but not outstandingly superior, as in the case of Ruth. The difference in their ages, however, as well as the intelligent attitudes of the parents, have prevented any undesirable rivalry between these two children. Ruth had been well prepared for John's coming; she was devoted to him and proud of him from the very first; she had a tendency to "baby" John and to "boss" him, keeping him somewhat overdependent when he was very young; there was an occasional indication of jealousy on her part because of the attention which he, as "the

baby," received, and she at times teased him. None of these tendencies developed into serious problems, however. From time to time, the parents were given suggestions as to how to handle these difficulties, and fundamental principles of discipline were formulated for them in their interviews with the psychiatrist and other members of the Institute staff.

The most difficult problems which the parents have encountered in Ruth have been those referred to earlier—a tendency to be aware of her own superiority, to resent, accordingly, the direction or correction given her by any adult, and to be patronizing or impatient toward individuals whose mental functioning was not so rapid as her own. The parents were given help in meeting these problems from time to time. Emphasis was laid upon the fact that Ruth should not be overdirected, that she should be given as much freedom as possible in regard to all except genuinely important matters, but that in those she should be forced to respect the requests of her parents, teachers, and others in authority. The parents were also advised to let her attempt things that were too difficult for her from time to time, so that she would be made aware of her own limitations.

Another matter on which the parents occasionally sought advice was in regard to the constant questions asked by Ruth which seemed to involve matters far beyond her comprehension. They were advised to answer all her questions but to reply with brief and simple explanations rather than with complex answers that would lead to still further intellectual explanations in matters which would only tend to confuse her.

Too much reading began to affect Ruth's eyes when she was about nine years old; an oculist advised limiting her reading to a brief daily period. Ruth adjusted well to this; she returned to playing with dolls and to other simple forms of entertaining herself. The family has always enjoyed a good amount of wholesome outdoor recreation. Ruth has learned to adjust well to other children and has many friends; naturally most of them are somewhat older than she.

Present status of case.—Ruth is ten years old and is about to graduate from elementary school. In her most recent interview

with the Institute, Mrs. L said that they felt Ruth was very well adjusted and there were no difficulties troubling them.

Comments.—Treatment of this case illustrates very well the *co-operative* type of service in which another social agency works with the Institute staff, since in the early years treatment was carried on chiefly through the Infant Welfare workers who had been in contact with the family since Ruth was born. It also illustrates, in its later treatment, that type of *advisory* service which a child-guidance clinic can offer to intelligent and co-operative parents through occasional contacts.

Ruth's case presents a fairly typical picture of the problems which almost any parents are likely to encounter if they happen to have a child of very superior mental endowment. Such children are in great danger of becoming "smug" or "smart-alecky" unless very wisely handled, of presenting behavior problems in the school if held back to the grade of their normal chronological age where the academic work is far too easy for them, or of becoming socially unadjusted if allowed to go forward in school so rapidly that they find themselves with pupils who are physiologically and socially much more mature than they are. Children of unusual mental ability should be carefully nurtured and educated with the greatest wisdom because they, with their superior intelligence, should be the potential leaders of whom society has great need. One outstanding function of a child-guidance clinic may well be to help parents in the understanding and guidance of such so-called "gifted" children.

MARJORIE R—A MENTALLY RETARDED CHILD

Initial statement of problem.—In February, 1929, when Marjorie was four years and nine months old, she was referred to the preschool clinic of the Institute by the Infant Welfare Society of Chicago. The specific problems for which she was referred were speech difficulties, "negativistic" behavior, temper displays, and the question of mental retardation. She had not used words until she was three and a half years old and had not talked plainly enough to be understood until she was past four. Her spells of temper were extreme; whenever she could not have her own way,

she would scream and hold her nose until she turned blue. She was utterly dependent on her mother, would scarcely leave her side, and was negativistic about requests made by anyone other than her mother.

Family background.—Marjorie was the youngest of four children; there was a brother about three years her senior and two other brothers who were eight and ten years older than she. Both parents had been born in Eastern Europe. The father came to the United States in his late twenties; the mother came in her late teens.

As a child in Europe, the father had lived on a farm. Although his parents were in comfortable circumstances, he had no formal education because his father "did not believe in it," although his mother did. After he got to America, he went to night school and learned "enough to become a citizen." He expressed the opinion that the majority of immigrants in this country cannot be blamed for the way they meet life because they are poor and uneducated, and that if he had money to give away he would use it for education, especially for adults and parents—"to teach them how to bring up children." Before marriage, the father had worked in a factory; after marriage he became a peddler. His income was very seasonal and irregular but until the 1929 depression he had always been able to make a living for his family; during the year 1929 he had been forced to go more and more deeply into debt.

Although the mother had had very little formal schooling, she was intelligent and co-operative, and showed good common sense in regard to most of her problems. She was a very devoted wife and mother; it was, in fact, very obvious that she had a tendency to overprotect all of her children and to let them remain too dependent upon her.

The family life had formerly been a very happy one but in recent years the father's increasing "nervousness" had presented many problems in the home. He was a very kind and devoted father, but the least disturbance among the children upset him completely; he insisted that they all be absolutely quiet when he was in the home. His wife described in detail various types of peculiar behavior that had lately become characteristic of her husband, and said she felt that he needed the help of a "mental doctor."

The older children apparently were fairly well adjusted—at least the mother did not feel that they presented special problems; the two oldest appeared to be doing average work in school and the youngest of the boys better than average work.

Developmental and health history.—There appeared to be nothing unusual in the history of Marjorie's birth or early development, except late development of speech. The Infant Welfare physician who examined her when she came to the Institute found her in good physical condition, except for carious teeth; tonsils and adenoids had been removed.

Personality and behavior.—On her first visit to the Institute clinic, Marjorie was observed to be a rather slow, inactive, quiet child; she appeared very shy, exceedingly sensitive, ill at ease with strangers, and very dependent upon her mother. She always cried when playing with other children, was selfish with toys, jealous of the other youngsters, and preferred playing alone.

There were no habit problems, but the temper, negativism, overdependence on her mother, jealousy of older brother, inability to get on with other children, and apparent retardation of speech and mental development made Marjorie a source of constant concern and worry to her parents.

Psychological test results.—A Merrill-Palmer test was given Marjorie at her first clinic examination; the results indicated a mental age of only 3 years, 6 months, with a chronological age of 4 years, 10 months. At first Marjorie was very shy, clung to her mother, and showed great resistance to the psychologist; later she became more friendly and even appeared to enjoy the tests. She was easily distracted and showed very little persistence. Her motor co-ordination and control appeared average; her language ability was obviously below average, but since she came from a home where English was not the dominant language it was difficult to judge the degree of her language defect.

In the four years in which Marjorie has been known to the Institute, she has been retested from time to time. On two Merrill-Palmer tests she classified with the group of inferior ability.

On a half dozen Stanford-Binet tests, her IQ has varied from 73 to 86. At times her behavior during the test period would be very much improved, but on some occasions she lapsed back into resistant attitudes which made it very difficult to judge to what degree the poor results of the test were due to lack of interest and co-operation and to what extent they represented actually defective abilities. There appeared to be slight but steady improvement in language; enunciation became clearer and more easy to understand. Effort has remained poor throughout; the child has always tried to evade any difficult task with protests of "I don't know" or "I can't." The psychologists who have tested her agree that her "test intelligence" is fairly represented by an IQ of 80 to about 85.

Outstanding factors and general objectives of treatment.—Marjorie was obviously a case of mental retardation, but how much her retardation and behavior difficulties were due to innate lack of ability and how much to other contributing factors, some of which were very obvious, it was difficult to judge. Here was an oversolicitous, overprotective mother, who had a tendency to keep all of her children overdependent; here was a "nervous," mentally disturbed father much worried over the family's finances, who demanded peace and quiet in the home at all costs, thus making adequate discipline of Marjorie impossible. Obviously, general objectives of Institute treatment should center about trying to change the attitudes and methods of both parents in dealing with this child, and about helping the father with his own problems so that he would be able and willing to sacrifice his own immediate insistence upon quiet in order to secure better training and discipline for the child.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. Since a speech clinic has been tried earlier with only slight success, the family are advised to ignore Marjorie's speech difficulties, but to encourage her to talk by engaging her in pleasant conversation.

2. Stubbornness, negativism, and temper tantrums are to be treated by better methods of discipline at home. Abrupt commands are to be avoided; the parents should quietly explain to Marjorie what they want her to do; as few commands as possible should be given to her. She should never be allowed to gain a point by temper; temper tantrums should be ignored; if temper occurs, the child should cry it out until she learns that she cannot get what she wants by temper.

3. The importance of co-operating with the mother in these methods of discipline should be explained to the father; he should also be urged to permit a greater atmosphere of freedom in the home so that his children may have normal outlets for their energies.

4. The mother should be urged to give Marjorie a few easy household tasks to perform each day and, since at the clinic it was obvious that the child was delighted with success and very susceptible to praise, the mother is advised to praise her for successful accomplishment of these tasks, thereby increasing the child's self-confidence and independence. The mother should encourage Marjorie to do everything possible for herself instead of the mother doing things for the child.

5. Definite efforts should be made to further Marjorie's social development. Children of her own age should be invited to the home and she should be encouraged to play happily with them.

6. Marjorie's jealousy of her next older brother might be decreased if the father will devote some special time to her, to correspond with the time he spends each evening reading or studying with the brother.

The above suggestions, elaborated into specific details, were conveyed to the Infant Welfare workers who were making the home contacts and carrying on treatment in this case, and were also discussed with the mother. The following autumn, however, when Marjorie, after a successful first adjustment to kindergarten, suddenly became very difficult in school, intensive treatment of the case was undertaken directly by the staff of the Institute's preschool department.

Progress of treatment.—The treatment program which was carried out cannot be described in detail here; the scope of it may be briefly indicated.

The home was visited frequently by the psychiatric social worker, who discussed with both parents the Institute's recommendations for handling Marjorie and demonstrated them occasionally. The psychiatrist had a series of interviews with the mother and father at clinics; later the father was referred by the Institute to a psychiatric clinic for adults and intensive psychotherapy for his own mental problems was undertaken there; the two clinics co-operated in their plans of treatment for father and child. Since the father's difficulties were largely the result of economic worries, he was finally persuaded to allow the Institute to refer him to a family case work agency for financial help; close co-operation between the Institute and this agency was maintained. Since the oldest son, although of working age, was not able to secure employment, the Institute worker made several attempts to secure special scholarship grants for him while he remained in school, in order to help the family's financial situation; these attempts were not successful, however, because the boy's high-school work was not on a level of high achievement.

The social worker of the Institute carried on a great deal of direct treatment of Marjorie. The child was seen often in the home and she and her older brother were frequently taken on recreational trips; sometimes other children were included. Many visits were made to Marjorie's school and frequent interviews with her teachers kept them informed of the Institute's interpretation of her problems and the efforts being made to overcome them; excellent co-operation was usually given by principals and teachers, whose understanding and interest helped greatly in improving the child's behavior. The Institute secured free enrolment for Marjorie so that she could attend special play groups during the long summer vacations and thus learn, under supervision and guidance, to play happily with other children. In all these situations, an effort was made to secure an attachment of Marjorie to the teacher or worker under whose supervision she came, because the psychiatrist felt that at least during these first stages Marjorie's adjustments would have to be made through people rather than through situations, especially until she had achieved a greater independence of her mother.

Present status of case.—At the age of eight years and nine months Marjorie has just been promoted to low third grade in school. She gets along fairly well in her school work; her reading is poor but her arithmetic and spelling are fair. At times her teachers have raised the question as to whether Marjorie might not better be transferred to a special room for retarded children, but thus far it has been possible to keep her in a regular school grade. At times her behavior in the schoolroom, as well as the poor and uneven quality of her academic work, have made her a problem to her teachers, but for the most part she appears to make a fair adjustment to an ordinary public-school situation.

Her speech has improved greatly; she has no specific speech disability but merely an infantile way of pronouncing words, with sentence construction and vocabulary considerably below the average for her chronological age. Negativism and temper have almost disappeared; her behavior at home is usually quite satisfactory, but there are periods when she becomes difficult for weeks at a time. She is much less dependent on her mother than formerly, but is still far more dependent than she need be, as the mother still tends to do more than necessary for all of her children. Marjorie helps her mother with many household duties and enjoys doing so.

There is no longer any evidence of jealousy of her older brother; the latter is making an excellent school record but appears to understand his little sister's limitations and does not make his superiority a source of rivalry. Much still remains to be desired, however, in Marjorie's adjustment to other children. She still persists in always wanting her own way and prefers to play with children younger than herself so that she can "boss" them. Much also remains to be desired in her ability to meet adult strangers. Although she has returned to the clinic many times for re-examination, on such visits she still seems timid—even fearful—clings to her mother, and refuses for some time to leave her mother's side. It is obvious that although the parents' methods of handling this child have improved greatly, the mother still "babies" her entirely too much.

The father's general outlook and attitude are better than

formerly, but there is little hope that he can be helped very much until he is able to be again economically independent. His mental depression has been considerably relieved by the fact that he is kept "artificially employed" a few days each week by the relief agency which is supporting the family.

Comments.—Marjorie presents the type of case frequently encountered among "border-line" mental defectives. Her retardation is not so severe but that it may be possible for her, with some special guidance and supervision, to complete the work of the regular elementary school, if allowed a couple of years beyond that required by most children to complete the eight grades. On the other hand, it may be necessary—especially if her *behavior* becomes too difficult—to transfer her to a special room for retarded children. Probably very little can be done, within the limits of present-day knowledge, to increase this child's mental ability, but much can be done to improve her behavior and perhaps her social adjustment.

The tendency of many parents to overprotect such a child and to make the child more dependent than necessary constitutes a frequent problem of parent education for child-guidance clinics. It is also often the task of the clinic to help the parents to understand and accept their child's limitations, while at the same time remaining hopeful about the child's ultimate ability to make a fairly satisfactory adjustment to society. Mental defect does not necessarily condemn one to a useless or unhappy life; much can be done through personality adjustments of the individual, retarded child to help such a child find as satisfying a place as possible for himself in the social scheme, within his own individual limitations.

ELINOR T—A PHYSICALLY HANDICAPPED CHILD

Initial statement of problem.—Elinor was referred to the Institute's preschool clinic in December, 1927, by a clinic for crippled children, when she was a year and ten months old. She was born with club feet and a paralyzed left arm, but in spite of these handicaps she was an active, energetic child—an attractive youngster, with blond hair, blue eyes, and a fair complexion. The problems for which she was referred to the Institute were enuresis

and "difficult to manage." Elinor's mother herself felt that because of the child's handicaps she had been "spoiled."

Family background.—The father was twenty-eight years old when Elinor was born. He had had a grammar school education and worked at semi-skilled labor; his periods of employment were quite irregular and when he was out of work for long periods of time the family had to seek help from relief agencies. He was said by the mother to have a quiet, calm disposition and to be fond of the children but quite severe with them.

The mother was twenty-four years old when Elinor was born. Her oldest child was a boy, five years older than Elinor, and she was again pregnant when she brought Elinor to the Institute. The mother's own childhood had not been happy. Having been left an orphan in infancy, she was boarded about from place to place; she remembered the two years which she spent in an orphanage at the age of twelve as the most pleasant period of her childhood. After she graduated from grammar school, she worked in a department store until she married at the age of sixteen. She seemed to be very fond of her children, and was eager to give them the advantages which she had missed in her childhood.

There was frequent disagreement between the parents in regard to Elinor's training. Both apparently tended to overprotect and to "spoil" the child because of her physical disabilities; then each would occasionally realize that she was being overindulged and would reproach the other for spoiling her. They had few outside interests and seldom went out, except for occasional walks with the children. There appeared to be no nervous or mental disorder in the family history of either parent.

Elinor's six-year-old brother, Tom, was an active, energetic boy, who was fond of outdoor play. He was in the first grade of public school. He had been made to give in to Elinor so much on account of her physical handicap that he had developed an obvious resentment against this little sister.

The family lived in a three-room flat in a neighborhood that offered only poor play activities for the children. They had no porch or back yard and the surrounding neighborhood was composed chiefly of cheap rooming houses, garages, and industrial plants.

Developmental and health history.—Elinor's mother had two miscarriages between the births of Tom and Elinor, and had always suffered from severe nausea during all the months of pregnancy. Elinor was a full-term baby—breech delivery.

When Elinor was only three days old, casts were put upon both feet. They were kept on until she was fourteen months old. The mother reported that three days after the casts had been removed Elinor began to walk, although she had never crept. The paralyzed arm was slightly smaller than the right arm but had greatly improved since birth so that the child could use it quite well. The doctor had tied down the normal arm in order to force the use of the paralyzed one. Elinor's general health had been very good; she had had none of the children's diseases. She had been under the care of the Infant Welfare Society and a hospital clinic for crippled children since birth.

Personality and behavior.—It was not surprising that Elinor should be difficult to manage. Because of her handicap she attracted a good deal of attention and everyone, especially her mother, tended to give in to her because they "felt sorry for her." As a result she was determined and persistent when she wanted her own way, and usually got it. Temper tantrums and whining were becoming very frequent, and the mother had begun to realize the error of her ways. Recently she had been letting Elinor "cry it out" when the child demanded something she should not have.

Feeding had at one time been a problem but that had been overcome through the help of Infant Welfare workers. Toilet training was still an unsolved difficulty. The mother reported that the child had been almost toilet-trained by nine months of age, but shortly after that new casts were put upon her legs which held them in a frog-like position and the mother had to abandon further efforts at toilet training. Elinor seemed to have developed a great resistance to using the toilet.

There were no children of Elinor's own age in the neighborhood. Her only playmate was her older brother, and, since he was constantly forced by their mother to give in to Elinor's whims and demands, his companionship only spoiled her further.

In spite of having been pampered because of her physical handicap, Elinor did not appear at all self-indulgent regarding her disabilities. She romped actively and energetically. She had very frequent falls and often hurt herself, but almost never cried over these tumbles. She would pick herself up bravely and romp gaily on.

Psychological test results.—On Elinor's first visit to the clinic, both a Merrill-Palmer and a Kuhlman-Binet test were given her. The child's distractibility was too great to complete either test satisfactorily; although the psychologist would, therefore, not score these tests, she estimated Elinor's intelligence as above average. On a subsequent visit to the clinic some fifteen months later, a Merrill-Palmer test was completed and indicated low average ability; the child was handicapped in her test performance, however, by her poor motor co-ordination and by her extreme distractibility and lack of persistence. A Stanford-Binet test given her later at the clinic when she was six years old yielded an IQ of 101, confirming the psychologist's first impression that the child had at least average intelligence even though it had not been possible to complete satisfactorily a mental test of her.

Outstanding factors and general objectives of treatment.—It was easy to understand why any mother whose child was born with such physical handicaps as Elinor's would be inclined to "spoil" her child. No one could help feeling sorry for this youngster and wanting to make things as easy as possible for her to compensate for the unusual difficulties which were inherently and peculiarly hers. Such pampering, however, only increased the problems. For example, the difficulty in training Elinor to use the toilet was partly due to the fact that she had had casts on her limbs much of the time since birth, but it was also partly due to her mother's failure to train her, one result of her general tendency to spoil the child and give in to her various whims. What was important was that this mother should hold Elinor as nearly as possible to the standards of training and development expected of a normal child and should substitute for excessive sympathy a desire to develop the child's independence and self-reliance.

The parental disagreement regarding methods of discipline, the bad relationship between Elinor and her older brother, the lack of

other playmates of her own age, the inadequate living quarters and undesirable neighborhood of the home, and the economic insecurity due to the father's intermittent employment were regarded as factors contributing to the problems in this case.

An important objective of treatment was to establish a more normal relationship betwen Elinor and her older brother, in order to overcome his rapidly growing dislike and jealousy of her.

Specific recommendations as formulated by a staff conference following the initial examination.—

1. It is recommended that the mother continue isolating Elinor and letting her "cry it out" when she has a temper tantrum or a bad crying spell.

2. The parents are advised to use disciplinary measures *consistently*, and not to let the child feel that she can "get her own way."

3. Elinor's resistance to toilet training may be an attempt to dominate her mother or may represent a desire for prolonged attention. Care should be taken in making sure that the child has a comfortable toilet chair to use; the mother should be careful not to make toilet time a disagreeable struggle; she should try to build up in Elinor a pride in successfully keeping herself "clean."

4. The mother should be careful, during the period in which she is undertaking to train Elinor differently, not to let the child feel that her mother does not care for her as much as formerly.

5. The parents should be careful not to show more affection for Elinor than for her brother and they should not expect him to give in to Elinor simply because she is younger and has a physical handicap.

6. Elinor may learn to handle objects and materials more carefully and to be less distractible if she is encouraged to help her mother around the house in setting the table and doing other such small tasks.

Progress of treatment.—These and other related suggestions were conveyed to the parents, to those who handled Elinor at the clinic for crippled children, and to the Infant Welfare workers on the case, through letters and by a series of visits made to the home by a psychiatric social worker of the Institute. As time went on,

the brother was also taken on for treatment, was sent to a summer camp, and was given special attention in various ways. When the third child arrived, both children appeared to welcome her eagerly and her coming tended to relieve the jealousy situation between the brother and Elinor.

The social worker of the Institute contacted the relief agency that helped the family when the father was unemployed and tried to see that the children suffered no direct privation through economic insecurity.

Under the constant care of the doctors at the crippled children's home, through operations, casts, and treatment, Elinor's physical defects were greatly improved, so that by the age of six she walked and ran with only a slight, if any, evidence of the deformity of her feet. She even learned to jump rope and roller-skate.

Several months after her first examination at the Institute, Elinor was toilet-trained, both day and night, and was much easier to manage in every way. The mother expressed great appreciation for the help that had been given her in training Elinor and said that many people had noticed and commented upon the improvement in the child's behavior. When Elinor was re-examined at the Institute clinic a year later, the mother reported that she no longer had difficulty in handling her. The child had learned that she could not get her way by whining, crying, or temper display. The brother's jealousy had lessened considerably. The mother's attitude toward Elinor and her methods of handling all of her children were greatly improved. Further recommendations for handling the problems of all three children were given from time to time as treatment progressed.

Treatment through occasional home and clinic contacts, gradually becoming fewer and fewer, was continued for more than three years. By that time Elinor was in the first grade of a special school for crippled children, having had a happy and successful year in kindergarten, and it seemed probable that she might be transferred to an ordinary public school within a couple of years.

Present status of case.—Only an occasional "follow-up" contact is now maintained in this case. On last examination at the Institute, Elinor was found to be a very vigorous, confident, happy

child. Her physical handicaps are very little in evidence; she appears to be getting on well in school and in her contacts with other children. The mother finds no special problems in managing the child at home.

Comments.—There is probably no case of marked physical defect which does not give rise, at one time or another, to psychological problems requiring personality adjustments of the individual to the physical handicap. Children who are physically handicapped are very likely, therefore, to become psychologically handicapped also, unless special consideration and treatment are given to the problems of their personality development. The goal for every child with a physical defect is to be as "normal" as possible in spite of the handicap. Most parents of children with organic defects need assistance in helping their children achieve this goal, because the parents naturally tend to overprotect a handicapped child. Elinor's case illustrates in a fairly typical way what a child-guidance clinic may do to help the parents of the physically handicapped in meeting their special problems.

PART II

RESEARCH STUDIES

CHAPTER V

INTRODUCTORY: SOURCES AND CHARACTERISTICS OF CASE MATERIAL

From the preceding chapters it is obvious that the children studied by the Preschool Department of the Institute were not an entirely unselected group. To ascertain in how far they constituted a representative sampling of the total population of which they were a part, the following analysis was made of the sources and some of the outstanding characteristics of the first 635 cases, upon which the research studies in this volume were based.

Sources of the cases.—Of the total 635 cases, 363 (57.2 per cent) became known to the Institute through its work in nursery schools; 243 (38.3 per cent) through the clinic service; and 29 (4.5 per cent) through miscellaneous sources. (Included in "miscellaneous" are 19 children who served as *control* cases in a special research project, and 10 who were examined for a special study of the Play Group of the Infant Welfare Society, already referred to in chapter iv.) A more detailed account of the agencies or individuals by whom children were referred to the Preschool Department of the Institute is presented in Table I.

It is exceedingly difficult to know what factors are operative in the selection of children for nursery school, and they probably vary from school to school, depending upon the character of the organization, its objectives, and its admission requirements. The Institute of Child Welfare Research of the University of Minnesota, for example, which exists primarily as a research center, has been insistent on securing in its enrolment of children a sampling which is as nearly as possible representative of the total child population of the city of Minneapolis, in which it is located. Taking the occupation of the father as perhaps the best single indication of the social and intellectual background of the family, they have, as nearly as possible, maintained for their nursery school an

occupational distribution of fathers which is in direct proportion to that reported by the census for Minneapolis as a whole.

No such consciously directed plan has been in operation at any of the nursery schools in which the Institute has worked. An effort is made in each of the schools to keep fairly equal distributions as to the age and sex of the children enrolled. Those factors having been considered, children are usually accepted in the order of application, although most of the schools also consider the

TABLE I

REFERRING AGENCIES AND INDIVIDUALS

Referring Agency or Individual	Number of Cases	Per Cent
By Mary Crane Nursery School	145	22.9
By Franklin Nursery School	75	11.8
By Winnetka Nursery School	72	11.3
By Garden Apartments Nursery School	40	6.3
By Community Nursery School	31	4.9
Total referred by all nursery schools	363	57.2
By Infant Welfare Society of Chicago	128	20.2
By child's own parents	46	7.2
By teachers	43	6.7
By social agencies (other than I.W.S. and U.C.)	20	3.1
By United Charities	15	2.4
By friends and relatives	11	1.7
By other clinics of Institute for Juvenile Research	5	0.8
By physicians	3	0.5
No information	1	0.2
Total	635	100

urgency of the individual cases. In the Winnetka Nursery School the children are, for the most part, referred to the school by their own parents. The interest of these parents in having their children attend nursery school is probably in many cases a factor tending toward selection from superior homes. Since the community itself is one where the general economic, social, and educational status is very high, these nursery-school children probably represent very superior homes. So far as we know, no family of a Winnetka Nursery School child has ever been known to any "social agency." On the other hand, in the Mary Crane Nursery School the great majority of the children are referred to the school

by social agencies. This usually indicates that the children come from homes of very poor socio-economic status, where the work of such agencies is necessary. In many of these homes, also, the parents are foreign-born.

The Community Nursery School was a private organization, and most of the children enrolled there came from homes of high socio-economic status. This school and the Franklin Nursery School are no longer in existence. The children who attended the latter came from so-called middle-class homes, in some of which the parents were foreign-born. Many of these children received the health supervision of the Infant Welfare Society of Chicago, which would indicate that their economic status was such that they could not afford this health service from their own doctor. Comparatively few of these families, however, fell sufficiently below the "poverty-line" to require the help of the United Charities. The Garden Apartments Nursery School, which is part of a housing project for Negroes, was established for the service of the tenants. It is difficult to generalize about the social and economic status of these tenants. As a sampling of the total Negro population, they probably represent a rather wide range.

It is hard to judge whether or not these children in the various nursery schools present about the usual number of behavior or personality difficulties of most so-called normal children. No school admits or excludes them on that basis. Social agencies undoubtedly tend to refer to nursery schools children who especially need the habit training, socializing experience, and rich educational environment of these schools. The need, however, may arise from the inadequacy of the home environment rather than because of the personality or behavior of the child himself. Whether parents themselves are more likely to refer to nursery school a child who presents difficulties in their management of him than they are to refer one who does not—this is a question to which probably no one really knows the answer. It seems likely, however, that the parent who himself recognizes the child's need of nursery-school environment, is, in many instances, by that very fact to be classified as an intelligent parent who represents a superior home.

As stated in chapter iv, the children who come to the clinics conducted by the Preschool Department are from all parts of Chicago and its suburbs. They represent homes ranging from the lowest to the highest social and economic status. Although any group of clinic children must be considered selected (and, except that the child is referred for advice on some problem, just what selective factors are operative are not known), children who come to behavior or child-guidance clinics for preschool ages are probably less selected than those in clinics for older children.

As indicated earlier, most of the children referred to the clinics of the Institute's Preschool Department present the problems of the average, "normal" child; their behavior and personality difficulties are of all types, mild to serious. Only a small proportion of them can be regarded as in any sense abnormal or subnormal children. In cases where the parents themselves take the initiative in bringing their children to the clinic, that fact in itself is likely to be indicative of a superior home background and the intelligence of the parents. It is usually the more progressive and enlightened parents who themselves recognize their own limitations and the needs of their children, and make concrete efforts to overcome them.

Other data.—There is really no way of knowing definitely whether or not the cases studied by the Preschool Department of the Institute are a fairly representative sampling of the children of their ages in the community as a whole, *as regards personality and behavior*. There are no known "norms" for children in general which can be utilized for a *control group* with which our group may be compared. It seems reasonable to assume, however, that if our sampling of families is fairly typical of the general population in regard to their social and economic characteristics, the problems presented by their children would be more or less typical of what would be found for most children of that age in the community. This assumption seems warranted in view of the fact that not all our cases were children referred for clinic study and treatment because of behavior or personality difficulties; more than half of them were nursery-school children. Data regarding the social and economic characteristics of the 635 cases included were secured

from the records and were analyzed and tabulated. It is, of course, important to know the sex and age distribution of the children whose cases are included. The ages of parents and the number of children in the family may be of interest. Among the outstanding socio-economic factors which indicate whether or not any group represents a fair sampling of the total population of which it is a part, are the civil status of the parents, the birthplaces of parents and of children (as indicative of national origin), the dominant language of the home, the paternal occupations, and the education of the parents.

Many of the records are found to be incomplete as regards social data. This is partly due to the varying types of service given by the Preschool Department of the Institute, the social data called for in certain types of service differing somewhat from that needed for other types. But incompleteness of factual data is probably a characteristic of most service records, and one which can be overcome only if records are designed specifically for research purposes and compiled with research goals as constant, conscious objectives.

An illustration of omissions occurring in record data is furnished by our own data on *education of parents*. That item was included in our general outline of facts to be secured as part of the social history in each case. We discovered, when we searched the records for this factor, that it had been omitted from a very large proportion of our cases. In fact, information regarding this item was lacking in so many case records that no attempt has been made to include it in the data reported here. A possible explanation for overlooking this factor may be that often the limited time available for taking a social history at a clinic had to be used for more important facts about the child, his developmental history, and his behavior. Furthermore, what the worker wanted to know primarily—how *intelligent* is this parent, especially in attitudes toward and management of his or her children?—was revealed in many subtle ways by the long interview. In comparison, the actual amount of formal schooling which had been the privilege of the father and mother seemed relatively unimportant, and it

was the *worker's impression* of the father or mother, who served as informant, that was recorded.

The difficulties encountered in gathering the data for this specific factor afford an illustration of the problems (discussed in the research study on social adjustment) inherent in combining a research and service program. Such experience emphasizes the importance of including in case records specific forms for listing certain factual data (wanted for research purposes), which must *always be secured on every case.* The records of the Preschool Department are fortunately more complete in regard to some of the other factors which seem significant in relation to the social and economic status of the family.

Comparison with the total population.—It is extremely difficult to find statistics for the total Chicago population to which these data can be fairly compared. Federal census figures not only fail to make readily available some of the facts we are seeking but include boys and girls of adolescent age, as well as unmarried adults of both sexes. What are wanted for exact comparison with the data of this study are figures limited to families with children of preschool age. No such statistics for the Chicago area are available, but the writer was fortunate in having access to two special studies for the Chicago area, the data of which are limited to *families.* One is the study of the Subcommittee on Function of Home Activities in the Education of the Child, White House Conference on Child Health and Protection. Professor Ernest W. Burgess served as chairman with Dr. Ruth Shonle Cavan as research assistant of this subcommittee, and the data were gathered in Chicago during the spring of 1930.[1] The second is a volume by

[1] Certain selective factors must be borne in mind regarding both of these studies. Data of the Burgess study were gathered through questionnaires filled out by students in the eighth, ninth, and tenth grades of the Chicago public junior and senior high schools (omitting thereby continuation, private, and parochial schools). All junior and senior high schools in the city, except three, are included; the actual number of children in the study was approximately 7,600. The mean age of the children ranged from 14.5 years to 15.7 years when the questionnaires were classified into local community groups based on place of residence. Theoretical figures for the whole city were computed on the basis of the actual figures gathered, so that the final statistics of the study are those which would be expected were children selected from the various local community groups in proportion to the total number of children of that age who live in these various localities.

Day Monroe entitled *Chicago Families: A Study of Unpublished Census Data.*[2] The study was made in 1930, but is based on the statistics of the 1920 federal census.[3]

SOCIAL AND ECONOMIC DATA

Sex.—Of the 635 cases, 322 (52.3 per cent) are boys and 303 (47.7 per cent) are girls. This fairly equal distribution of the sexes is found also in the subgroups—that is, in each of the nursery-school lists and in the clinic group. The federal census for 1930 (Vol. III, p. 4, Table 46) shows 50.8 per cent boys and 49.2 per cent girls for children in Illinois who are under five years of age. The proportion of boys in our group of cases is a little larger than that found in the population as a whole, but the difference is very slight.

Age of child.—The age of the child, as given here, refers to the age at the time of our first contact with the child, or to his age at the time of his entrance to nursery school, if that occurred before our contact with him. Only 7 cases are less than two years old and only 19 are over seven years old. In 23 cases the child's age, at the time he was referred to the Institute, falls in the 72–83 month range, leaving 580 cases (of the total 635), who are literally of pre-

[2] Published by the University of Chicago Press, Chicago, Illinois, 1932.

[3] For Monroe's study a random sample was selected from the 1920 census schedules of the Federal Bureau of the Census; every thirtieth household was used (Negroes and households not containing a "natural" family were excluded). Records for 23,373 families were thus obtained. To be certain that this random selection yielded a representative sample (i.e., to determine whether the sample investigated included families of given characteristics in the same proportion as did the city's population), the findings on these 23,373 families were compared with such facts concerning Chicago as were available from the publications of the Bureau of the Census. The sample appeared to be truly representative, and it seems safe to assume that facts obtained in this investigation furnish a reliable picture of the families of Chicago. These families were from no one district and from no one occupational or nativity group; only the Negroes were excluded.

For the purposes of her investigation, Monroe considered a *family* to be a "group of persons living together and having a marital or parent-child relationship" (p. 8). ". . . . A family is composed of a husband and wife, with or without children, or one parent with broken marital ties having one or more unmarried sons or daughters living at home" (p. 233). Although some childless couples were thus included in the study, 72.8 per cent of the families studied had children actually living in the home at the time the 1920 census was taken. The data are, therefore, fairly comparable to those of the present study.

school age, if one accepts two to six years as the "preschool period."[4] There are six cases in which certain information on the birthdate of the child could not be obtained; these are either foundlings or children whose parents were so unusually ignorant that they did not know the birthdates of their children.

Ages of parents.—Ages of parents, at the time the child was referred, were compiled but are not given here in detail, because the results do not seem significant. The range for the fathers is 20–60 years (only one father being more than 60), with the mode lying between 30 and 40 years; the range for the mothers is 20–55 years (only one mother being under 20), with the mode between 30 and 40 years, but there are almost as many mothers whose ages fall between 20 and 30 years. These facts regarding parental ages are what one would expect in studying any group of children of preschool age. That these ages are fairly representative of Chicago mothers of preschool children generally, is indicated by comparison with Monroe's figures on this point. She found that 41 per cent of Chicago wives have children under seven years of age, and that 65 per cent of the wives between 25 and 35 years of age have children less than seven. Monroe's figures for the 8,255 families who had children under seven years of age indicate the following distribution by ages of mothers:

	Mothers
Under 25 years	1,219
25 and under 35 years	4,620
35 and under 45 years	2,143
45 and under 55 years	266
55 and under 65 years	7*
65 years and older	0

* Monroe suggests that such children may have been adopted or stepchildren.

Number of children in family.—The number of children in the families of these 635 cases range from 1 to 6, with the majority having less than 5, and only 28 families having more than 6, children. In 22 cases information on this point was incomplete. The mean number of children per family is found to be 3.03 and the mode is 2 children.

[4] Definition of the "preschool period" may be an arbitrary matter at the present time, and varies in different centers. In some places the period is considered to extend downward to birth; in the Preschool Department of the Institute we have been inclined to consider the period below two years as "infancy," although children under two are occasionally accepted for study. The upper age limit is usually considered six years, since that is the generally accepted age for grade-school entrance, although some centers separate the kindergarten child from the preschool classification. Our department includes work with the kindergarten child.

Burgess also found 2 children to be the mode, but his figures refer only to the number of children living at home, rather than the total number of children born into the family.

Monroe in her Chicago investigation found the average number of children per family (among those families having children) to be 2.72 children. Apparently the children served by the Preschool Department of the Institute for Juvenile Research tend to represent families having more than the average number of children for Chicago families in general. The difference is perhaps a little greater than the means suggest, since Monroe's group included children of all ages, while our group, being of preschool age, are more likely to include a greater number of families that are not yet "completed."

Civil status of parents and children.—Of the total 635 cases:

484 (76.2 per cent)—are children of married couples with both parents living, and living together

30 } (6.8 per cent) —are children of widowed mothers
13 } —are children of widowers

5 } (0.9 per cent) —formerly were half-orphans but living parent has remarried
1 } —child is a full-orphan

10 (1.6 per cent)—are children of illegitimate birth

64 (10.1 per cent)—are children of broken homes (in 14 of these cases one parent is in an institution. Half-orphans are not included here.)

28 (4.4 per cent)—are cases in which information regarding the civil status of parents is lacking. (These are chiefly cases referred to earlier, which served as *control* cases for special research projects and in which no attempt was made to secure complete social histories.)

635 (100 per cent)

As indicated in the foregoing tabulation, most of the children served by the Preschool Department of the Institute come from

"normal" home situations—at least, they are living with both parents. Fourteen are adopted children; 4 are in boarding homes, and a very few—less than a half dozen—are in institutions at the time of this tabulation, most of these last being temporary placements.

Comparison of these figures with those of Burgess and Monroe seems to indicate that in regard to home situation our group constitutes a fairly representative sampling of the community as a whole. Burgess found that 76.3 per cent of his adolescent boys and girls live in homes where both parents live at home. In her investigation Monroe found that 18 per cent of the families with children are broken families (p. 110, n. 6). Eighty-two per cent would, therefore, be homes in which both parents are living. In more than 82 per cent of the broken homes conjugal ties had been broken by death; in 12 per cent there had been separation or desertion; in 6 per cent, divorce (p. 272).

One would expect to find a smaller percentage of broken homes in a population of children of preschool age than among adolescents or a population, such as Monroe's, including children of all ages. If our Institute figures are computed without the 28 cases where detailed information on civil status was lacking, and if one adds to the *un*broken homes the former half-orphans where the parent has remarried (since those were not counted as broken homes in Monroe's study), our figures approximate hers very closely. The unbroken homes of our group become 80.7 per cent of the total, as compared with 82 per cent for Monroe's. Also, Monroe's group did not record "illegitimate birth," which classifies another 1.6 per cent of our group. Upon analysis, then, our percentage of unbroken homes is about the same as Monroe's. Probably the only reason it does not exceed hers is that the data on Institute cases are undoubtedly more accurate than data taken from federal census reports, especially in regard to an item such as broken homes which many individuals might be tempted to conceal from the census enumerator.

Birthplace of parents and child.—Analysis of these 635 records reveals that most (91.6 per cent) of the children are native-born. Of the fathers, 52.7 per cent are native-born, 39.6 per cent are foreign-born, while for 7.7 per cent birthplace is not recorded. Of the mothers, 58.6 per cent are native-born, 33.3 per cent are foreign-born, while for 8.1 per cent birthplace is not recorded.

Burgess found 43 per cent native-born fathers (including Negroes), while Monroe found that 52 per cent of Chicago's home-makers (women) are native-born. She comments, in regard to the 48 per cent foreign-born:

> The percentage of foreign-born in Chicago is higher than in the country as a whole because of the tendency of immigrants to settle in urban rather than rural districts. . . . . The proportion of foreign-born was lowest among the young home-makers, being 30 per cent of those under twenty-five, but rising to 71 per cent of those sixty-five or older [p. 23].

TABLE II

COUNTRIES OF BIRTH FOR FATHERS, MOTHERS, AND CHILDREN

	No. of Fathers	Per Cent	No. of Mothers	Per Cent	No. of Children	Per Cent
Chicago	63	9.9	67	10.6	377	59.3
Illinois (outside Chicago)	22	3.5	13	2.0	40	6.3
United States (outside Illinois)	250	39.3	292	46.0	165	26.0
Italy	81	12.8	55	8.7	0	.....
Mexico	38	6.0	35	5.6	7	1.1
Russia	29	4.6	23	3.6	0	.....
Germany	22	3.5	21	3.3	4	0.6
Austria	13	2.0	13	2.0	1	0.2
British Isles	10	1.6	19	3.0	1	0.2
Canada	6	0.9	7	1.1	2	0.3
Greece	6	0.9	4	0.6	0	.....
Norway, Sweden, and Denmark	4	0.6	6	0.9	0	.....
France	2	0.3	4	0.6	0	.....
*Miscellaneous	41	6.5	25	3.9	2	0.3
No Information	48	7.6	51	8.1	36	5.7
Total	635	100	635	100	635	100

* Countries which were represented by only one or two parents were grouped together under this classification. They included Japan, Jamaica, Bulgaria, Persia, Croatia, Armenia, and a number of others.

The percentage of native-born appears to be higher for both fathers and mothers of our Institute group than for those in the studies by Burgess and Monroe. Of Monroe's mothers who ranged in age from 25 to 35 years, however, 58.1 per cent are native-born (p. 22). This is the group that is most comparable to ours. The

proportion of native-born fathers in Burgess' study may be lower than ours because of the fact that the children in his study are of adolescent age, while ours are of preschool age.

Most of the 635 children included in our studies were born in the United States—582 or 91.6 per cent of the total number; 17 (2.4 per cent) were born in foreign countries; for 36 (5.7 per cent) of the cases birthplace is not recorded.

Table II lists the countries of birth for fathers, mothers, and children. Most of these foreign-born parents had been in the United States more than five years—that is, they were not very recent immigrants.

Dominant language of the home.—In this connection it may be of interest to state the dominant languages in the homes of these families. Data on this point, however, must be regarded as questionable. It is difficult to distinguish between the foreign home where "English is spoken" and the home in which it is actually the *dominant* language in daily usage. One often finds that an unexpected visit to the home reveals parents and children chattering away in Italian or Mexican or other foreign tongue, although when asked in our office interview, "Do you speak English at home?" the mother had proudly answered, "Yes!" According to our records 427 (67.2 per cent) of our families use English as their dominant tongue; 158 (24.9 per cent) usually speak in foreign languages; and in 50 cases (7.9 per cent) the dominant language of the home was not recorded. It seems probable that this number of English-speaking homes is approximately correct, as 398 of the mothers were born in English-speaking countries.

Paternal occupations.—The occupations of the fathers of the children included in these studies were classified according to the Sims[5] classification, but no attempt was made to score them. Table III presents these data.

It is difficult, if not impossible, to compare these figures with those of Monroe on the occupations of the men in the families of her study (p. 13, Table I) because the classifications used are not similar. Neither can they be compared to the figures given by Goodenough and Anderson in their table of occupations for adult

[5] Verner Martin Sims, *The Measurement of Socio-Economic Status* (Bloomington, Ill.: Public School Publishing Co., 1928).

males in the United States as a whole, based on the 1920 census reports.[6] Not only do the Sims classifications differ from those used in the census reports, but also these census figures are for the country as a whole, including agricultural and small-town populations, while our figures are those of a very large, urban community.

TABLE III

OCCUPATIONS OF FATHERS

Occupations of Fathers	No. of Cases	Per Cent	Per Cent*	White House Conference Data (Per Cent)
Professional men; important public and private officials; proprietors of businesses and managers employing more than 10 men; etc.	87	13.7	16.4	(8)
Commercial and clerical service; proprietors and managers employing 5–10 men; etc.	70	11.0	13.2	(12)
Skilled tradesmen, etc.	63	9.9	11.9	(34)
Skilled laborers; small shop owners, etc.	176	27.8	33.2	(37)
Unskilled laborers, etc.	134	21.1	25.3	(9)
Not able to work	9	1.4	.....	.....
No information	96†	15.1	.....	.....
Totals	635	100	100	100

* Percentages after eliminating cases reported as "not able to work" and "no information."

† The large number of records which lacked adequate data for classifying paternal occupations is another instance of the difficulty encountered in using service records for research analysis. Contacts with fathers are difficult to make when they are employed, and sometimes their wives, especially foreign-born women, are not able to give a very definite statement of the type of work in which their husbands are engaged.

The most comparable figures are those used by Professor Burgess for his White House Conference data. He also used the Sims classification. The percentages found in this White House Conference study are given in the parentheses following our own percentages in Table III. To make our figures more comparable, the 15.1 per cent of men for whom information on occupations was not available and the 1.4 per cent composed of those "not able to work" were excluded and the occupational percentages in each classification were recalculated, accordingly. These figures are also given in Table III.

If similar paternal occupations are to be expected for children

[6] Florence Goodenough and John E. Anderson, *Experimental Child Study* (Minneapolis, Minn.: University of Minnesota, 1931), chap. xxvii, p. 237.

of preschool age and children of the junior high and high schools, and if the White House Conference data do fairly represent the Chicago population, then it appears that the cases of the Institute's Preschool Department are somewhat overweighted for those occupational groups represented by the extremes of the Sims classification—the professional and executive groups at the one end and the unskilled groups at the other—and that they include an insufficient proportion of the "skilled trades" group. It seems probable that this is the case; the children referred by such nursery schools as the Winnetka and Community, and the children referred to our clinics by their own parents do, on the whole, represent homes of very high socio-economic status; the children referred by most of the other nursery schools and the children referred by social agencies to our clinics are likely to represent the underprivileged classes. It seems reasonable to expect that adequate representation of the great "middle-class" groups would not be found in a clinic intake such as ours unless deliberate effort would be made to enlist the interest of such parents.

On the other hand, in the group studied by Burgess the percentage of fathers in the *professional and executive* group and the percentage in the *unskilled labor* group are probably smaller than those of the Chicago population in general. It must be remembered that the children who filled out the White House Conference questionnaires for that study were attending public schools and were pupils of the eighth, ninth, and tenth grades. Since many sons and daughters of fathers in the highest occupational group attend private schools, and many children of unskilled laborers do not reach the eighth grade, these two occupational groups were probably not adequately represented in Burgess' figures. Unfortunately there are no figures based on the Sims classification, and more typical of the entire population, with which these Institute data could be compared.

Occupations of mothers.—Since, in our data, 461 or 72.5 per cent of the 635 mothers were reported to be "at home," a detailed analysis of maternal occupations was not made. It may be of interest, however, to know that reports for the remaining 27.5 per cent indicated the following: 10.2 per cent employed at unskilled work; 5.4 per cent were employed as stenographers, clerks, seamstresses, and other skilled workers; 3.3 per cent were professional women carrying on professional activities; 0.8 per cent were "studying"; 0.6 per cent were "working in their homes"; 1.5 per cent were merely said to be "working"; and on 5.7 per cent there was no information. In Professor Burgess' study, 80 per cent of the mothers were "not employed"; this figure is very close to that of our data.

Summary.—In general, these first 635 cases of the Preschool Department appear to constitute a fairly representative sampling of the total population as regards sex, number of children per family, civil status of parents, and percentages of native and foreign-born parents; at least, there do not appear to be any outstanding discrepancies that weight the data. A selective factor is found, however, in the analysis of paternal occupations. For our group of children, the percentages of fathers who classify in the extreme groups at both ends of the Sims occupational scale are probably unduly large, while the middle group is probably not adequately represented in our population, when compared with the proportions of these occupational groups as found in the total Chicago population.

RESEARCH STUDIES

Data such as are contained in the case records of the Preschool Department offer many and varied possibilities for analysis, so that it was difficult to choose the problems to which attention should first be directed when research studies were undertaken on the case material that had been gathered. After consideration of a number of possible projects, three were selected on the basis of: (*a*) the general importance of the basic problems involved; (*b*) the fact that the records of the Preschool Department contained data of promising significance in relation to these problems. The results of these three research studies are presented in the following pages.

The first problem undertaken was a comparative study of young children of high and low socio-economic status. The relative capacities and abilities of children from different social backgrounds are matters of vital importance in relation to many social problems—especially in regard to the planning of educational programs for children. Because the Preschool Department of the

Institute had many case records of children in nursery schools which obviously represented high and low socio-economic levels, it seemed likely that data throwing light upon these questions might be abstracted from our records. Attempts to compare children of different socio-economic levels in regard to personality and behavior were abandoned because the data on personality and behavior were not considered sufficiently quantitative and objective to justify their use as comparative measurements. The study was therefore limited to the comparison of the children of two nursery schools (124 cases; 62 in each group) in their performance on the Merrill-Palmer Scale of mental tests; this material is presented in Study One.

The second study undertaken was on the matter of social adjustment in children of preschool age. The importance of an individual's adjustment to his fellows is too obvious and too generally recognized to require comment here. Much remains to be learned, however, regarding the possible factors which make for good social adjustment and those which make for maladjustment. With the increasing recognition of the importance of the early years in the life of an individual, there is a growing belief that the *social behavior pattern* is established while a child is still quite young, and there is a tendency to regard as especially significant for later life those factors which influence the child's social development in the preschool period. Our records seemed to offer an unusual opportunity to study such factors in relation to a considerable number of children of preschool age. Study Two represents such an analysis of the data of 250 records.

The third study undertaken was an analysis of Stanford-Binet and Merrill-Palmer test results for children of preschool age. The many practical uses of mental tests are widely known. Psychological testing at the preschool level is a field in which there is great need for further experimentation and careful analysis of results with large numbers of children. Since all children who are studied by the Institute are given psychological tests, a considerable amount of mental test data was at hand. The results of our analysis of this material for 825 cases are presented in Study Three.

CHAPTER VI

STUDY ONE: YOUNG CHILDREN OF LOW AND HIGH SOCIO-ECONOMIC STATUS

A COMPARATIVE STUDY OF THEIR PERFORMANCE ON THE MERRILL-PALMER SCALE[1]

A. THE PROBLEM

It was pointed out in chapter v that the several nursery schools in which the Preschool Department of the Institute has functioned represent rather striking contrasts of social and economic backgrounds. Anyone familiar with the district surrounding Hull-House and the suburb of Winnetka would know that children who attend the Mary Crane Nursery School come from homes of very low socio-economic status, and that the children of the Winnetka Public School Nursery come from homes of one of the highest levels of the Chicago area. The case records that had been compiled for the children in these two groups, therefore, offered an unusually good opportunity to study certain aspects of children of low socio-economic background, as compared with those of high status.

The relation of intelligence, as measured by tests, to socio-economic status has interested a number of investigators. A review of the literature reporting studies of this problem reveals a significant mass tendency for high IQ's to be associated with superior economic and social status, and vice versa. The results of Stanford-Binet tests given by our psychologists to the children attending Mary Crane and Winnetka Nursery schools showed similar tendencies. Of the children who are the subjects of this study, 64.5 per cent (40 cases) of the Mary Crane group and 77.4

[1] Most of the psychological tests in this study were given by Marian Taylor Boyd. She also abstracted the data used from the records, assembled them for statistical analysis, and helped to review the literature reported here.

per cent (48 cases) of the Winnetka group had been given Stanford-Binet tests by Institute psychologists. The mean IQ of the former group was 105.4 and of the latter group 123.4, the difference between the means being 18 points.[2]

As members of our staff observed and worked with these children, however, they found themselves constantly questioning to what extent the inferior IQ's of the Mary Crane group were due to language handicap in a test such as the Stanford-Binet where language is a dominant factor. The children in such a district as that surrounding Hull-House have not only the more meager language environment inherent in homes where parents have had very limited educational opportunities but, in many cases, the additional handicap of the child whose parents are foreign-born. Not only are many of these homes bilingual but frequently the *dominant* language of the home is still a foreign language. Some of these children have had practically no opportunity to learn the simplest English before entering nursery school. It would seem, therefore, that a performance scale would be a fairer test of their "intelligence" than any scale in which the ability to use or to understand the English language is a dominant factor. The results of the Merrill-Palmer Scale of tests, which had been given by psychologists of the Preschool Department of the Institute to most of the children in both the Mary Crane and Winnetka Nursery schools, made a study from this point of view possible.

The problem.—Accordingly, a study was outlined in which some of the data contained in the case records were analyzed with a view to answering the following questions:

1. Is there less difference in the test results between children of the Mary Crane group (low socio-economic status) and children of the Winnetka group (high socio-economic status) on a scale such as the Merrill-Palmer, in which performance is a dominant factor, than on the Stanford-Binet in which language is the dominant factor?

[2] A similar difference is reported on page 278 of this volume, where 89 children who attended Mary Crane Nursery School were found to have a median IQ of 101.9 and 31 children of Winnetka Nursery School a median IQ of 122.9 on Stanford-Binet tests.

2. Does omission of the language tests from the Merrill-Palmer Scale affect the difference between the two groups?

3. Does analysis of the results for the various individual tests within the Scale reveal differences between the two groups?

Perhaps it should be made clear at this point that this study was not intended to throw any light upon the question of the inheritance of intelligence. It was the author's intention that low or high socio-economic background be accepted per se for the children in this study without raising the question of whether the child is affected by it through heredity or environment or both. As the reader will see, however, it seemed impossible to ignore this question in discussing the findings. In attempting to interpret the results, the author felt that certain implications had a direct bearing on the much-disputed question of the relative influence of heredity and environment.

Socio-economic status.—The term "socio-economic" symbolizes a rather inadequately defined concept—one so broad in its scope that it is exceedingly difficult to formulate an exact definition for it. Several attempts to define and measure it have been made. A discussion of these will be found in Appendix A at the end of this study. To date, there is not available any simple, reliable, and valid instrument by which to measure the socio-economic status of the home background of a preschool child,[3] nor is there any single factor which has been proved to be a reliable and valid comprehensive index of such status, although occupation of father is the one most commonly used.

In the study herein described, the necessity for determining the socio-economic status of the homes from which the subjects came was eliminated by choosing as subjects two groups of children of such obviously different levels with reference to home background that there could be no difference of opinion on the matter.[4] A

[3] "There is great need for a scale that will function at the lower grades" (Verner Martin Sims, *The Measurement of Socio-economic Status* [Bloomington, Ill.: Public School Publishing Co., 1928], p. 31).

[4] This method was the one used by Sims for establishing the validity of his score card (33 [numbers indicate References at the end of the study], pp. 25–26). In his study three schools which any competent judge would agree to be of different socio-economic levels were selected for comparison, and the scale was considered valid because it adequately differentiated between the three groups.

detailed description of the two groups and their socio-economic levels will be given later.

B. STUDIES COMPARING CHILDREN FROM HIGH AND LOW SOCIO-ECONOMIC LEVELS

A survey of the literature reveals a number of studies, comparing results on various tests, of school children from different socio-economic levels. There have been relatively few studies, however, comparing children of preschool age from this point of view.

Haggerty and Nash (19), using the Haggerty Intelligence Examination, Delta 2, in a study of 8,121 public-school pupils in New York State; Dexter (6), studying results of Dearborn tests and National Intelligence tests for 2,782 children from the public schools of Madison, Wisconsin; and Scott (32), using the Binet-Simon tests in a survey of children of different nationalities and environments, found a direct relationship between the occupations of fathers and the success of pupils on intelligence tests. Children whose fathers were of the professional class did decidedly better than those whose parents were classified in lower occupations. Fukuda (11), in a study of Stanford-Binet test results for 257 public-school children of Evanston, Illinois, found that children whose parents were engaged in business or office work, and who came from homes which graded high on the Whittier Scale, earned higher IQ's than children whose homes rated low on the Whittier Scale and whose fathers belonged to the group of unskilled laborers. Sirkin (34) found similar results, using occupation of father and education of mother and father as indices of socio-economic status, in a recent study of approximately 2,500 school children in Russia.

Pressey and Ralston (30) gave a scale of tests developed at Indiana University to 548 school children. They reported similar findings on the relation of occupation of parents to the mental ability of their children. Duff and Thompson (7), in a study of 13,419 school children in England, found a steady decline in average IQ with decreasing social standing, as indicated by occupation of the fathers. Both of the last-named studies, however,

found an overlapping of IQ's among children who represent different levels of parental occupations. Stoke (36), studying 508 children of North European racial stock, classifying occupations of parents into five groupings, found a correlation of $.30 \pm .03$ between Stanford-Binet IQ and occupational group. Chapman and Wiggins (4), in a study of approximately 1,000 school children of the New England coast, grades VI–VIII, found a correlation of $.32 \pm .024$ between social status and IQ. They used the National Intelligence Test and the Chapman-Sims Socio-economic Scale. Elimination of the language factor modified their correlation only very slightly—to $.31 \pm .024$.

Terman (40), in his study of gifted school children, found that data on occupation was sufficiently definite to permit a classification for 560 fathers. Grouping according to Taussig's (39) occupational classification, he found the percentage distribution to be as follows: professional, 31.4; semi-professional and business, 50; skilled labor, 11.8; semi-skilled and unskilled labor, 6.8. Ratings of the occupations of parents on the Barr Scale (2) indicated that fathers of these gifted children were decidedly superior in status to adult males of the general population. Home ratings on the Whittier Scale (46), for 288 random homes of gifted children, were compared with similar ratings on 50 unselected homes and 120 homes of delinquent boys. On all items the homes of the gifted rated much higher than those of delinquents, with the greatest difference in parental supervision. The unselected homes approximated those of the gifted on all items except parental supervision.

Terman points out that his results agree with other investigations of adults as to the existence of a very striking social hierarchy with respect to the production of superior individuals, and states, "*Our data show that individuals of the various social classes present these same differences in early childhood, a fact which strongly suggests that the causal factor lies in original endowment rather than in environmental influences*" (40, p. 66).

While other similar studies might be cited, those listed above are sufficient to indicate that the literature, reporting various types of studies in various parts of the world, reveals a general

trend for the level of intelligence to rise with socio-economic level, so far as school children are concerned.

PRESCHOOL STUDIES

Turning to the child of preschool age, one finds fewer studies of the relationship of the child's test results to his social and economic background.

Furfey (12) found no relationship between the Linfert-Hierholzer test scores of young infants and the socio-economic status of their parents as measured by the Chapman-Sims Scale. On the other hand, Gesell and Lord (13), Witty (47), Goodenough (16), Goodenough and Shapiro (18), and Atkins (1) agree in finding significant relationships between the intelligence test scores of preschool children and various indices of socio-economic status. These several studies, however, cannot be closely compared with one another, nor with the present study, because in no two of them has the same scale been used for measuring the intelligence or other abilities of the children studied.

In the study by Gesell and Lord (13), a psychological comparison of 11 pairs of children from two nursery schools was made, with economic status as the differential. Occupation of fathers and type of housing were used as indices of socio-economic status. These children ranged in age from 31 to 52 months, and all were English-speaking Americans. Norms of test situations of the Yale developmental schedules were applied to the children, and special situations were objectively defined for the study of personality differences, giving a total of 300 clinical measurements on 15 different items as follows: block construction, form-matching tests, drawing, comprehension, vocabulary, conversation, information, spontaneity of speech, spontaneity of drawing, play initiative, persistence, co-operativeness, poise, eating and sleeping habits, and self-care.

The authors found that the advantage rested with the group of higher economic status on all items except self-care. They pointed out that in virtually every field, whether verbal, practical, or emotional, the advantage seemed to be with the favored group. Their explanation for the single exception of *self-care* is that it is largely dependent on instruction, social suggestion, and motivation, and that the environmental stimulus to self-care may be greater for the children from low socio-economic backgrounds. They concluded, "Although sweeping conclusions must be carefully avoided, the clinical estimates and measurements show a definite tendency toward superior mental equipment in group A (the children from well-to-do homes)" (13, p. 354).

Witty (47) studied 258 children of a preschool clinic in Kansas, using the Stanford-Binet scale. His group included 132 boys and 126 girls, ages from 3 to 6. Dividing the subjects on the basis of fathers' occupations according to the United States census classifications, he found ten times as many children of professional parents as of industrial parents in the group of IQ's 138 and above, and five times as many children of the industrial group as of the professional group with IQ's 85 and below. Using the Barr Scale of Occupations for his data, he reported a correlation of $.50 \pm .03$ between occupational status of parent and intelligence of child.

Goodenough (14) studied the results on the Kuhlmann-Binet Scale of 495 children between the ages of 18 and 54 months. Three hundred of these children were given two tests after an average interval of 5.9 weeks. The results on the second tests were, in general, distinctly higher than those on the first, but the gain was greatest for the children whose fathers belonged to the professional classes. The children of day laborers not only made no consistent gain but, on the average, showed a slight tendency to rank lower on the second test than on the first. Goodenough found that the child's intelligence showed a distinct relationship to the occupational status of the father and to the education of the parents, with a consistent and fairly regular decrease of the mean IQ of children as one goes down the scale of occupational classes.

The author says (14, p. 61):

> On both tests, the children whose fathers belong to the upper occupational groups average distinctly higher in intelligence rating than do those of the lower classes. While a similar relationship between paternal occupation and intelligence of offspring has previously been demonstrated in the case of adults and also for school children, it is now shown for the first time that individuals coming from the various social classes present equal, if not even more marked differences in intelligence as early as the age of two, three, or four years.

She concludes that whatever may be the factors underlying the relationship between social class and intelligence test score, they appear to be as effective during very early childhood as in later life.

Using some of the same subjects, with a total of approximately 475 cases, Goodenough and Shapiro (18) sought to determine whether children of lower social groups were characterized, not simply by a somewhat lower general level of abilities, but also by a difference in the profile or pattern of abilities which is exhibited at any given development level. They point out this question as of some theoretical significance, since it may have a bearing not only upon the origin of individual differences in mental ability but also upon the general nature of intelligence and the possibility of its modification through training.

For this group of preschool children who had been given the Kuhlmann-Binet test, they analyzed the comparative performance of children from different social backgrounds on the separate tests within the scale. No children with foreign-language handicap were included in the study. Since the purpose of the authors was to compare developmental patterns rather than developmental rates or levels, they classified their subjects according to mental age rather than chronological age, thus making it possible to determine whether reliable differences exist between the different social classes with respect to pattern of performance when the total level of performance is held equal.

Their index of socio-economic status was the same as that used in the study by Goodenough, referred to above. They grouped paternal occupations into six classifications, ranging from professional men as Group I to unskilled laborers as Group VI, using a modification of the Barr and the Taussig scales. Children of class A (including occupational groups I, II, and III) were found definitely superior in language tests; those of class B (including occupational groups IV, V, and VI) were found superior in six out of eight motor tests, while no reliable differences at this age level were found in tests that required information or adaptive behavior. The authors stressed the fact that in no instance was group B *absolutely* superior to group A when *chronological ages* were held equal.

Atkins (1) standardized a non-verbal test by giving it to 400 two-, three-, four-, and five-year-old children. She describes her test as follows:

> The Object-Fitting Test provides a means of classifying young children as to general intelligence by means of their non-verbal reactions to certain visual stimuli. These stimuli consist of a series of blocks containing recesses of various sizes and a group of common objects, certain ones of which may be fitted into the recesses. It is an intelligence test that can be given without the use of language on the part of either child or examiner. It is therefore especially adaptable for use with children who are deaf, who do not speak or understand the English language, or who have some language handicap [1, p. 69].

In the selection of her subjects, Atkins included an equal number of each sex. Using the same occupational classifications as those in Goodenough's study, she kept the percentage of cases from each social category equal to the percentage of that category in the Minneapolis population according to the census of 1920. She points out that a better basis of selection might have been the *percentage of children whose fathers* are in each category, since the extreme, numerical difference in size of family between upper-class and lower class groups may materially disturb the ratio. There were no census data available, however, to make such a basis of selection possible.

As a part of her study, Atkins compared 18 cases of two-, three-, and four-year-old children whose fathers were in occupational groups I and II with 18 cases of similar age from Group VI. The mean CA of the former was 35.0 and of the latter 35.5. She found the mean IQ of the former to be 109.0 and of the latter 93.7, the ratio of the difference to the *S.D.* of the difference being 4.6. She points out that while the difference in mean C.A. is statistically very insignificant, the ratio of 4.6 between the difference in IQ and the standard error of this difference indicates that the Object-Fitting Test may be measuring a very real difference between the groups (1, p. 61). On the basis of her findings on these 18 pairs she claims that the Object-Fitting Test "has high discriminative capacity, since it yields statistically significant differences between two groups known to differ in ability." (Here she refers especially to the earlier studies by Goodenough.)

She admits, however, that certain selective factors at work may have tended to increase the apparent difference between groups I and II and Group VI. Because of the character of the sources of her supply, the extremes of each group were most likely to be included in the sampling. In parents of the upper socio-economic groups (groups I and II), the more intelligent parents are most co-operative in bringing their children for testing, whereas in the lower socio-economic group (VI) the least efficient parents are the ones whose children are commonly found in charge of social agencies.

It appears, then, that studies thus far available, in which preschool children of low socio-economic background are compared with those of high socio-economic level, indicate the superiority of the upper-class group in regard to "intelligence" as measured by tests, with the superiority less apparent on motor or performance tests than on language.

These studies, however, do not throw much light on the relative abilities of well-to-do and poor children when compared in regard to a variety of performance tests, such as are included in the Merrill-Palmer Scale. The study by Gesell and Lord included only 11 pairs of children. Witty used the Stanford-Binet and Goodenough the Kuhlmann-Binet Scale, in both of which language is a dominant element. Goodenough and Shapiro analyzed separately the varied types of tests within the latter scale; they found children of the lower occupational groups superior on motor tests when mental ages were held constant, but not when chronological ages were held equal. Atkins included only 18 pairs of children in this phase of her study; moreover, the Object-Fitting Test of Atkins includes only one type of test. Further studies are needed to evaluate more adequately the abilities of young children from different socio-economic levels.

C. SUBJECTS

FOREIGN-LANGUAGE HANDICAP

One important factor that has not been satisfactorily dealt with in the studies thus far is the question of *foreign language handicap*. Gesell and Lord included only English-speaking Americans in their study; Goodenough and Shapiro stated that no children with foreign-language handicap were included; Witty and Atkins did not deal with this question. While it may be true that the effects of the socio-economic factor itself can be better isolated by eliminating the complicating factor of a foreign-language handicap, there are also certain objections to this procedure.

Any group of children from the lower socio-economic levels of an urban community in the United States normally includes some proportion of children who are of foreign-born parentage, if not actually foreign-born themselves, although there are some communities, mostly in isolated areas, where one finds only native stock. Therefore, a true sampling of the lower socio-economic urban level should include some foreign-born element. *Absolute elimination of this group probably lowers the intelligence level of the sample studied*, because the native-born of a population are likely to remain on these lower levels *because of their lack of ability*, whereas foreign-born may be in the lower group only because they have not yet had a chance to rise in their new surroundings. This present study, therefore, does not exclude children with a foreign-language handicap. The Mary Crane Nursery School group is simply included as it exists in the impoverished area of a great metropolis, the factors of foreign birth and foreign language being discussed separately. The Winnetka group also contains some parents of foreign birth.

CASES

The children in this study are divided into two groups of 62 each. The Mary Crane group is composed of children from a low socio-economic background and the Winnetka group from a high socio-economic background. The children of the two groups were paired on the basis of their chronological ages (C.A.) at the time the Merrill-Palmer tests were given. A range of two months C.A. was allowed in pairing. The mean C.A. of the Mary Crane group is 36.6 months and that of the Winnetka group is 36.7 months. The age range for the former is from 25 to 55 months and for the latter is from 25 to 56 months. The former includes 30 boys and 32 girls; the latter includes 37 boys and 25 girls. There are 9 pairs of siblings in the Mary Crane group and 4 pairs in the Winnetka

group. The former, therefore, represents 53 families, and the latter, 58 families.

The children in both groups attended nursery schools. The effect of nursery-school experience, however, was not a matter of interest in this study. These two groups of children were selected merely as representatives of extremes of the socio-economic structure. A general description of the two groups follows:

Almost all of the children who attend the Mary Crane Nursery School of Hull-House live in the near neighborhood, which is a typical "slum" area of Chicago. This section of the city is foreign in character, representing a mixture of nationalities, chiefly Italian, Mexican, and Greek, and including a large Negro population. The economic level of life is very low, most of the men belonging to the class of unskilled laborers. The district is very congested and there are no parks or playgrounds in the immediate vicinity. Many social agencies, such as the United Charities and the Infant Welfare Society of Chicago, maintain district offices in this neighborhood because of its obvious need. Most of the families who live here are near the poverty line, and many of them have been known to the United Charities at one time or another. Housing facilities are poor, the majority of families living in crowded, dark quarters. In brief, the section from which the children in this group come is typical of the poorest residential sections in any large city.

Most of the children who attend the Mary Crane Nursery School are referred to the school by the United Charities or the Infant Welfare Society because of some pressing need, such as mother working or ill, home overcrowded, or need for special nutritional care. Mention should be made of the fact, however, that this group of 62 children includes 4 whose parents were residents of Hull-House at the time this study was made. The standard of living of these few families is decidedly above the average of the neighborhood. In two of the three families represented by these 4 children, the educational and cultural background is not only superior to the general neighborhood level but comparable to that of the children in the Winnetka group.

The children who attend Winnetka Public School Nursery come from an environment which is at the other extreme of the

social and economic structure. The children all live in Winnetka, which is a residential suburb about seventeen miles from Chicago. Most families in this suburb live in private residences; many own their own homes. All the homes have yards and there is plenty of play space. The families of these children, as a whole, live in comfortable circumstances. Some very wealthy families are included but, in general, most of them represent families who own their own homes and keep one servant. Most of the men go to business in Chicago. The population is composed chiefly of native Americans of native parents.

The nursery school attended by the children of the Winnetka group is a part of the public-school system of Winnetka, which is well known because of its progressive nature. Many of the mothers of these children were instrumental in getting this nursery school started and took an active part in raising money for it. In most instances they enrolled their children for the advantages of companionship with other children of preschool age, and because of the special opportunity which a nursery school affords for the development of independence, constructive play habits, and the like.

CASE ILLUSTRATIONS

The following two cases are illustrative of the contrasting backgrounds from which these two groups of children come. The cases selected do not represent the extremes of the two groups, but are chosen as typical of the majority of cases in each group.

Mary Crane.—Clemencia, age four, and Maria, age two, are the second and third children of Mexican parents living two blocks from Hull-House. The father came to this country three years ago and the mother and children came ten months later. The family consists of mother, father, and four children ranging in ages from ten years to two months. The three oldest children died at birth. The family live in four rooms on the second floor rear of a four-story frame building. The rent is $15.00 a month. The mother keeps the rooms neat and clean, although they are very meagerly furnished. There is a small back porch where the children play. There is a toilet in the home but there is no bath tub or wash bowl. Since the new baby arrived, Clemencia has slept on two chairs placed together.

The father speaks a little English but Spanish is the dominant language spoken at home, as the mother does not speak any English. The father went to school for two years in Mexico. He has always had unskilled jobs, such as

digging ditches or working on the railroad. At present he is working as a laborer in a soap factory, earning $20.00 a week. The mother, who is a very attractive, friendly woman, went to school for three years in Mexico. She is attending English classes at Hull-House. She has been to the movies just once since coming to Chicago.

Both Clemencia and Maria attend the Mary Crane Nursery School. They were referred to the school by the Infant Welfare Society because the home is crowded since the arrival of the new baby and there is insufficient space for them to play. They both also need the special nutritional care provided in the nursery school. The children have no toys of their own and frequently fight with the neighbors' children in an attempt to get their toys away from them.

Winnetka.—Catherine, age three, is the only child of a family who have lived in Winnetka about two years. She entered the nursery school a short time ago because her mother, who is much interested in new educational theories regarding young children, wanted her to have the companionship of children of her own age. The family, consisting of mother, father, Catherine, and one maid, live in a large colonial house which has a yard in front and back. Catherine sleeps in her own room, which is used as her playroom in the daytime. She has carefully chosen toys to play with. Both parents are very much interested in her. The father spends as much time as he can with her.

The father graduated from Harvard University and the Massachusetts Institute of Technology. He has a high executive position in a large manufacturing firm and is earning a large salary. The mother graduated from college and then took special work in music, which she taught before her marriage. She is a member of the nursery school Board of Directors and belongs to the Woman's Club. Both parents are much interested in music; the mother attends the symphony concerts every week; they go often to see the best plays and have subscribed to the opera for several years.

SOCIO-ECONOMIC DATA

Although it is obvious from the foregoing descriptions of the neighborhoods from which the subjects of the study were drawn that no socio-economic rating scales were necessary to differentiate these two groups, an analysis was made for both groups of several factors which would be regarded as significant in any such scale. The objective facts support the assumption which the obvious seemed to warrant, and are presented here in support of the assertion that these two groups represent high and low socio-economic status. The items tabulated were: occupation of father, mother employed or not, education of parents, whether or not the family was known to social agencies, birthplace of child and birthplace of parents, and language spoken in the home. The number of children in each family and the place of the child in the family were also tabulated.

Occupation of father.—Using the Sims classification for occupation of father (33) one finds that only four fathers of the Mary Crane children are in Group I, representing professional men and the like, while the majority of the fathers of the Winnetka children, 41 cases, are in that group. Turning to the lowest occupational classification, one finds that the majority of the Mary Crane fathers are represented in Group V, unskilled laborers. Twenty-one Mary Crane fathers and no Winnetka fathers are in that group. Table IV contains the data on occupations of fathers for both groups of children.

TABLE IV

OCCUPATIONS OF FATHERS

Occupational Groups of Fathers*	Mary Crane Group	Winnetka Group
I. Professional men, etc.	4	41
II. Commercial service, etc.	6	3
III. Artisan, proprietors, etc.	5	0
IV. Skilled laborers, etc.	6	1
V. Unskilled laborers, etc.	21	0
No record	11	13
Total number fathers	53	58

* For details see page 22 of the Sims reference.

The occupations of mothers were not classified, but ten of the Mary Crane mothers and only five Winnetka mothers work outside the home. Of the latter five, three are teachers, one is in the insurance business, and one is employed in a restaurant.

Education of parents.—Data for this item are incomplete, especially for the Mary Crane group.[5] Such data as are available, however, indicate the sharp contrast of the two groups in regard to this factor. Of the 28 cases in the Mary Crane group where information on education of the fathers is recorded, 9 are found to have had no formal schooling; 13 had one or more years of gram-

[5] See chap. v of this volume, p. 103.

mar school; 2 had one or more years of high school; and only 4 had college or advanced vocational or professional training. Of the 45 fathers in the Winnetka group on whom there is information as to education, 1 had one or more years of grammar school; 8 had one or more years of high school; and 36 had college or advanced vocational or professional education.

The education of the mothers indicates a similar trend. Of the 31 Mary Crane mothers for whom education is recorded, 6 are found to have had no formal schooling; 21 had one or more years of grammar school; 3 had attended high school for one or more years; and only 1 had college or advanced vocational training. Of the 45 mothers in the Winnetka group on whom there is information on education, 9 have attended high school for one or more years, and 36 had college or advanced professional or vocational training.

Social agencies.—The fact that a family has had to seek contact with a social agency is a very obvious index of socio-economic status. So far as we know, none of the families of the Winnetka group is known to a social agency, whereas more than one social agency had registered on 43 cases in the Mary Crane group.[6] The mean number of registered social agencies per family was 7 for the Mary Crane group.

Birthplace of child and of parents.—Almost all of the subjects in this study are American-born. The only exceptions are three foreign-born children in the Mary Crane group, and two of the same group whose birthplaces are not recorded. Analysis of the data on birthplaces of their parents, however, reveals a very different situation. More than half of the fathers of the Mary Crane children (30 of the total 53) are foreign-born, Italy being the native country of more than half of these, and Mexico having the next largest representation. Nearly half of the mothers of this group of children are foreign-born (24 of the total 53). Almost all of the parents of the Winnetka children are native-born Americans, the only exceptions being 3 fathers and 5 mothers who

[6] Just one agency could not be considered significant in the case of a Mary Crane child because the Infant Welfare Society of Chicago, as the examining medical agency for the nursery school, automatically contacted every child.

were born abroad. Table V shows the country of birth for fathers and mothers of both groups of children.

The question may be raised as to whether foreign birth should be considered an index of lower socio-economic status than native birth. Chapman and Wiggins (4) reported findings indicating that even the very superior foreign family does not attain a level of social status much above the average of the community within a single generation, showing clearly the handicap which the foreign family faces in establishing itself in a new community. Even though it may not always be a justifiable assumption that the fact of foreign-born parentage is an indication of lower socio-economic status than native-born parentage, there can be no question but that it is a socio-economic index for the groups herein discussed. The foreign-born parents of the Mary Crane group represent chiefly struggling Italian and Mexican immigrants who have not yet gained sufficient social and economic foothold to lift themselves out of a poor and congested area of their newly adopted country.

TABLE V

BIRTHPLACE OF PARENTS

	U.S.	Italy	Mexico	Others	No Record	Total
Mary Crane:						
Father	22	17	6	7	1	53
Mother	28	10	6	8	1	53
Winnetka:						
Father	55	0	0	3	0	58
Mother	52	0	0	5	1	58

Language spoken in the home.—The fact that a foreign language is the common or dominant language of the home has not been definitely established as an index of socio-economic status. Sims included it in his original series of questions, but it was eliminated from his final score card "because of general weakness on the basis of the criteria of selection" (33, p. 19). He states, however:

> I might say that if I should add any other questions to the scale, *English in home* would be one of the first ones to be added. I think that if the object

is to differentiate between the socio-economic levels of two groups you would be justified in saying that *English in home* is an indication of this condition.[7]

The forms used in the case records upon which this study is based did not provide for detailed data on the languages spoken in the home. All that they indicated was which language was the dominant one in the home. In more than half of the homes of the Mary Crane group, English is not the commonly spoken language of the home, whereas it is the dominant tongue in all but one home of the Winnetka group. The numbers for Mary Crane are English 23, Italian 12, Spanish 11, miscellaneous 4, and 3 not recorded; for Winnetka they are English 57 and German 1.

Number of children in family.—It was to be expected that the families of the Mary Crane group would exceed those of the Winnetka group in size. Thurstone and Jenkins, referring to cases of the Institute for Juvenile Research (43, pp. 2–4), state:

> It is reasonable to expect that the children of large families in this population, in which the parents are very frequently foreign-born, would have slightly lower performance on the Binet test than children of small families in which the parents are more frequently native born. It is also probably true that large families represent, on the average, a lower intellectual, social, and economic status than small families.[8]

The mean number of children per family in the Mary Crane group is 3.6; the range is 1–8, and the mode 4. In the Winnetka group the mean is 2.7, the range being 1–6, and the mode 2. Eighteen of the 53 families of the former have 5 or more children, whereas with one exception all the families in the Winnetka group have 4 or less children.[9] Since all of the children in this study are

[7] This quotation is from correspondence on this question between Professor Sims and the author.

[8] Chapman and Wiggins (4) reported a correlation of $-.27 \pm .025$ between size of family and social status. Jones [21, p. 207], in commenting on their findings, says, "From numerous other studies such a result appears to be fairly typical of an unselected population. In special groups, however, the correlation may drop to zero or become positive."

[9] One of the major difficulties in the type of research which this study represents is that only a few variables can be controlled. It is not even possible to control all of the variables which are known to bear a relationship to the major factors studied. For example, in this study it was not possible to control *size of sibship* nor its corollary, *place of child in family*, commonly known as *order of birth*.

A great mass of material has been published upon the relationship between intelligence and size of family. Summarizing the results from their own study and others from the literature on size of sibship, Thurstone and Jenkins [43, p. 121] say, "Numerous studies in this country and in England confirm each other in showing a negative correlation between intelligence and size of sibship. On the other hand, there is evidence that this relationship is in fact curvilinear and that within the feeble-minded group the correlation between intelligence and size of sibship is positive."

The same authors, in commenting upon the contradictory findings of a study by Edin (8) in which the "upper" classes are found to be having larger families than "lower" classes, and a study by Pearson and Moul (26), consider that the negative fecundity-intelligence correlation is probably a recent development conditioned by the later marriage of the educated classes and the acquaintance with and use of contraceptive methods among them. They attribute the results found by Pearson and Moul, which failed to show any significant relation between intelligence and size of sibship, to the fact that the factors mentioned above were probably as yet little operative among the population studied, and anticipate that with the ultimate spread of contraceptive knowledge among the less educated classes, it is probable that the negative fecundity-intelligence correlation will diminish or disappear.

Chapman and Wiggins found a correlation of $-.33 \pm .024$ between size of family and IQ. It became $-.22 \pm .04$ for American and $-.24 \pm .05$ for foreign, when American and foreign families were considered separately.

of nursery-school age, they probably represent, in many cases, families which are not yet completed.

Order of birth.—It is also to be expected, since the two groups differ in regard to the number of children per family, that the children of the two groups in this study would differ as regards order of birth. The children of the Mary Crane group, on the whole, represent later-born children than those of Winnetka. About an equal number of each group are first-born children, but the fourth, fifth, and sixth places in the birth order of the family are filled by only 12 of the Winnetka, as compared with 24 of the Mary Crane, group.[10]

[10] A number of studies concerned with the relation of intelligence quotient to position in family have also been published. Summarizing their own and other studies, Thurstone and Jenkins (43, p. 120) state, "There is definite evidence of a tendency for the intelligence quotients of siblings to increase progressively within sibships from the first-born child to the later birth numbers, at least as far as the eighth born child."

Jones, however, upon reviewing the literature (including the monograph by Thurstone and Jenkins) on this question, says, "We prefer to conclude that intelligence is not yet proved to be a variant with order of birth" [21, p. 226].

As stated earlier, it was not possible to control these variables in the selection of subjects for this study, nor did it seem desirable to resort to the use of the partial-correlation technique to hold constant such factors as birth-order or size of sibship, in which the distribution departs markedly from the normal or Gaussian, and in which

D. PSYCHOLOGICAL TEST PROCEDURE

The test used as a basis for comparing the two groups described above is the Merrill-Palmer Scale of Mental Tests. This scale has several advantages for such a study as this. It is primarily a performance scale and should serve as an interesting basis for comparison with other studies in which tests involving more language ability have been used, such as the Stanford-Binet and Kuhlmann-Binet scales.

Secondly, due to the method of scoring the Merrill-Palmer Scale, it is possible to obtain a separate score based on performance tests alone, with language tests omitted. This is highly desirable for the purposes of this study. Individual mental tests vary greatly in the amount of language involved. Most "intelligence tests" are verbal tests—that is, they require both the comprehension and use of language; other tests use verbal instructions but demand no verbal response, thus requiring some degree of language comprehension but not the use of language (most "performance" tests are of this type, and are called *non-verbal* tests by some psychologists); in some tests directions are in pantomine form, so that neither language comprehension nor language usage are required. (These last are genuinely *non-language* tests in that they can be given to any person regardless of the specific language which he may speak.) There was no non-language test available for children of nursery-school age at the time the tests used in this study were given, but by the method of scoring mentioned above it was possible to make the Merrill-Palmer Scale at least a *non-verbal* test.

A third advantage is that the method of scoring most of the individual tests within this Scale is such that varying amounts of credit are given the child for a test, depending chiefly upon the speed of his performance. While for certain purposes this may be

the grouping is necessarily "coarse." Since size of family appears to be a corollary, at least at the present time, of low socio-economic status, whatever relationship it bears to intelligence may be looked upon as a logical corollary of the relationship between socio-economic status and intelligence. If a positive correlation does exist between ordinal position and intelligence, however, it may affect the data of this study in that the children of the Mary Crane group, who represent the later-born children of their families, may tend to higher IQ's than would their older siblings.

an objection to the scale, for this study it is an advantage in that it facilitates comparison of one group with another."

A general description of the Merrill-Palmer Scale, including the method of scoring and a detailed statement of the individual tests, can be found in Stutsman's *Mental Measurement of Preschool Children* (38). It is sufficient to state here that the individual tests of the scale involve motor ability, form discrimination, language ability, and the capacity to learn as indicated by a series of form board tests.

As has been stated previously, the Merrill-Palmer tests on which this study is based were given routinely as a part of its regular service to the nursery-school children of all the schools in which the Preschool Department of the Institute worked. Usually children were tested during their first few months of attendance at nursery school, but sometimes the test was given before the child actually entered school, as a part of the total examination on the basis of which he was recommended for, or admitted to, nursery school. This happened to be true of one case in the Mary Crane group and thirty cases in the Winnetka group.

In cases where the child had been given more than one Merrill-Palmer test, the results of the *first* test were used as the data for this study in order to avoid possible practice effects. For all but six children this was the first psychological test of any kind that they had been given; six Mary Crane children had previously had the Stanford-Binet. In no case was a test included if the results had been questioned by the psychologist, such as tests in which the child's poor co-operation may have affected his score.

Three psychologists gave practically all of the tests for both

" Any thorough consideration of the relation of the *speed* factor to intelligence test results would lead too far afield for the present investigation, and no attempt is made here to interpret any differences found between the Mary Crane and Winnetka groups in regard to their speed of performance. In this connection, however, the writer wishes to call attention to the monograph by Otto Klineberg in which the problem of speed, as well as certain other factors, in relation to test results is very thoroughly discussed ("An Experimental Study of Speed and Other Factors in 'Racial' Differences" by Otto Klineberg, *Archives of Psychology*, Vol. XV, No. 93 [January, 1928]). Klineberg concludes that there are good reasons for believing that differences in speed depend largely, if not entirely, upon training and environment.

groups; all three were specially trained in handling preschool children. All three psychologists tested in each of the schools.[12]

E. FINDINGS

COMPARISON OF THE TWO GROUPS ON PERFORMANCE OF THE MERRILL-PALMER SCALE AS A WHOLE

Table VI shows the test results for the Mary Crane and Winnetka groups in terms of the mean mental age (M.A.), mean raw score, mean percentile rank, and mean score in terms of standard deviation (*S.D.*) norms,[13] with the differences between the means and their probable errors. The mean M.A. of the Winnetka group is 2.2 months above the mean M.A. of the Mary Crane group (an actual difference, however, of 2.1 months as the mean C.A. of the former is .1 of a month above that of the latter). The mean raw score, mean percentile rank, and mean score in terms of *S.D.* norms are correspondingly higher for the Winnetka group.[14]

[12] Since we all know that different psychologists may obtain quite different results in testing an individual child, the question may be raised as to whether the differences in psychologists may have affected the results of this study. As indicated elsewhere in this volume, all tests included as data were given by professional workers especially trained in the preschool field; so the effect of differences due to individual examiners should be very slight. An analysis made for other purposes is of interest on this point. For two successive years, the total kindergarten group of the public schools in one Chicago suburb were given individual Stanford-Binet tests by the Preschool Department of the Institute. Each year the tests were given by two examiners and there was a striking similarity of results. For the first year, the mean IQ of the 53 children tested by one examiner was 108 with a range of 85–146, while that for the 45 tested by the second examiner was 106, with a range of 78–136. For the second year the 49 children tested by one examiner had a mean IQ of 110 with a range of 75–138; while 46 children tested by the second examiner had a mean IQ of 109 with a range of 77–150. (The second examiner was the same individual for the two successive years, while the first examiners were different.) It does not appear, therefore, that the difference in examiners would be an important factor in any such test results.

[13] The child's test score in terms of standard deviation norms was obtained by using Table 27 in Stutsman's book, *Mental Measurement of Preschool Children* [38, p. 237]. Scores, however, were interpolated to the nearest tenth whenever the score did not fall directly on the norms set forth in the table.

[14] The question may be raised as to whether the larger sampling of boys in the Winnetka group affects the findings of this study. (There are 30 boys and 32 girls in the Mary Crane group and 37 boys and 25 girls in the Winnetka group.) Most studies of children of preschool age have revealed a slight superiority of girls over

TABLE VI

COMPARISON OF GROUPS A (MARY CRANE) AND B (WINNETKA) ON RESULTS OF MERRILL-PALMER SCALE AS A WHOLE

	No. of Cases	C.A. (in Months)		M.A. (in Months)		Raw Score		Percentile Rank		Score in Terms of *S.D.* Norms	
		Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*
Group A	62	36.6±.7	8.2	36.9±.9	10.1	39.2±1.6	18.6	52.2±2.5	29.4	0.1±.1	1.0
Group B	62	36.7±.7	8.2	39.1±1.2	13.6	41.8±1.9	21.8	57.0±2.3	26.8	0.2±.1	0.9
Difference* between means of A and B		(−) 0.1		(−)2.2±1.5		(−)2.6±2.5		(−)4.8±3.4		(−)0.1±.1	
Significance† quotient		0.1		1.5		1.0		1.4		1.3	

* In Tables VI and VIII: (+) indicates that Group A (Mary Crane) exceeds Group B (Winnetka); (−) indicates that Group A (Mary Crane) is less than Group B (Winnetka).

† "Significance Quotient" $= \frac{M_1 - M_2}{P.E._{M_1 - M_2}}$ in Tables VI, VIII, VIII A, IX, and X

In order to determine whether, with these numbers, the differences might be due to chance, the probable errors of the differences were computed by the usual formula:[15]

$$P.E._{M_1-M_2}=\sqrt{(P.E._{M_1})^2+(P.E._{M_2})^2}$$

From the "significance quotients" (i.e., the ratios of the differences between the means to the probable errors of those differences), the differences do not appear to be significant differences.[16]

COMPARISON OF MERRILL-PALMER AND STANFORD-BINET RESULTS

It is interesting to compare these findings with the test results on the Stanford-Binet Scale for the same subjects. As stated earlier, not all of these children had been given Stanford-Binet tests, but 40 children of the Mary Crane (64.5 per cent) and 48 of the Winnetka group (77.4 per cent) had been tested on the Stanford-Binet Scale by Institute psychologists, with resulting mean IQ's of 105.4 for the Mary Crane and 123.4 for the Winnetka

boys in Stanford-Binet and Kuhlmann-Binet test performance (see p. 288 of this volume), and in linguistic ability in general. If the data of this present study are analyzed on a sex basis for the 88 children who were given Stanford-Binet tests, this same tendency is evident. The mean IQ's for the 23 girls and 17 boys of the Mary Crane group are 106 and 103, respectively, while the mean IQ's for the 20 girls and 28 boys of the Winnetka group are 126 and 121, respectively. Had these samplings been equalized as to sex, therefore, the difference between the mean IQ's of the two groups would probably have been even greater than the 18 points difference found.

This superiority of girls, however, probably does not extend to performance on the Merrill-Palmer Scale. Stutsman (27, p. 123) found no significant sex differences for total score on the Merrill-Palmer test, nor are such differences apparent in the data reported in Study Three, Sec. E, of this volume.

In this present study the mean sigma score for the 32 girls in the Mary Crane group is found to be −.03, as compared with −.13 for the 30 boys; for the Winnetka group the mean sigma score is −.34 for the 25 girls and −.10 for the 37 boys. (Scores in terms of standard deviations are interpolated.) It therefore seems reasonable to assume that the larger sampling of boys in the Winnetka group does not affect the major results of this study.

[15] See K. J. Holzinger, *Statistical Methods for Students in Education* (Boston: Ginn & Co., 1928), p. 235, formula 89.

[16] *Statistical significance.*—There is a difference of opinion among statisticians as to what constitutes "statistical significance." In the studies in this volume a difference is considered significant if it is at least *three times its probable error.*

group, a difference of 18 points IQ in favor of the latter. The significance quotient of this difference is 9.0, which indicates a significant difference between the two groups, according to the results of the Stanford-Binet Scale. These findings are in accord with those of Goodenough on the Kuhlmann-Binet Scale (14, p. 45). She found an advantage of from 19 points IQ for the two-year-olds to 20.1 points IQ for the four-year-olds, in favor of children whose fathers belonged to the highest occupational group, as compared with those whose fathers belonged to the lowest.[17]

MEAN IQ

	Merrill-Palmer (62 Cases)	Stanford-Binet (40 and 48 Cases)
Mary Crane	100.8	105.9
Winnetka	106.5	123.9
Difference	5.7	18.0

OVERLAPPING

In view of the apparent mass tendency, revealed by the literature, for high IQ's to be associated with superior socio-economic status, various investigators have been interested in the study of individual deviations from this tendency. In this connection, these data are here analyzed from the point of view of the overlapping. Table VII shows the number of children in the Mary Crane and Winnetka groups whose raw scores on the Merrill-Palmer test place them among the highest percentile ranks (90–100), and the number of children whose test scores have a percentile rank of only 1–10.[18] Children from both nursery schools are found among the highest and also the lowest percentile ranks, but there is more overlapping of the two in the highest classification than there is in the lowest one.

[17] Since Stutsman does not recommend the use of the IQ for the Merrill-Palmer Scale (38, p. 235), no detailed comparison of the two groups was made on this basis. A rough computation of the Merrill-Palmer mean IQ's, however, is inserted here to show how it would compare with the mean IQ's of the Stanford-Binet. The difference in IQ on the Stanford-Binet is approximately three times as great as on the Merrill-Palmer.

[18] These percentile ranks are derived from Stutsman's Table 30 (38, p. 240) and are, of course, in relation to chronological age.

These findings do not appear to support the conclusion of Murphy and Murphy (26, p. 106) that, "although both groups produce a large proportion of children of average intelligence, the lowest group is not apt to produce brilliant children and the highest group is not apt to produce deficient children." The present findings are in accordance with those noted by Pressey and Ralston (30), and by Duff and Thompson (7) in the studies referred to earlier. Pressey and Ralston reported that while the majority of children from the highest 10 per cent of test scores were of parents in the professional classes, and the majority of those who scored in the lowest 10 per cent were children of common laborers, some children in the latter group scored in the highest 10 per cent for

TABLE VII

OVERLAP OF THE TWO GROUPS IN HIGHEST AND LOWEST PERCENTILES

Group	Number of Cases with Percentile Rank of 90–100	Number of Cases with Percentile Rank of 1–10
Mary Crane	8	4
Winnetka	10	1

their age, and some children of the professional group fell in the lowest 10 per cent. A similar observation was made by Duff and Thompson in their study of English children. They reported that in spite of the steady decline in average IQ with decreasing social standing, one cannot be sure of accuracy in predicting from fathers' occupations (which they used as index of social status) the IQ of the child in any individual case, since there is so much overlapping of IQ's among children who represent different levels of parental occupations.

It should be noted here that of the 8 Mary Crane children whose percentile rank places them in the highest classification for their age, only 1 is the child of Hull-House residents (see p. 126). Two case summaries illustrating the overlap found in this study are inserted here.

CASE SUMMARIES ILLUSTRATING OVERLAP

Sammy K—a child from Mary Crane Nursery School who ranked in highest percentile on Merrill-Palmer Scale.

Sammy, age two years, six months, is the only child of orthodox Russian Jewish parents. The family live in three rooms for which the rent is $28.00 a month. The father has been out of work periodically since the family came to Chicago in April, 1929. At present, however, he is working part-time with a clothing firm as a draper. The mother is working part-time in the sewing trades and earns about $6.00 a week. The family have been helped periodically by a family relief agency during the periods of Mr. K.'s unemployment. Yiddish is spoken in the home.

Both the mother and father were born in Russia. The father is forty-five years and the mother is forty-one years old. They had been married for ten years before Sammy was born. The father, who was one of six children, attended school in Russia through the second-year high school. He then worked in his father's store before coming to the United States in 1911. After reaching here he learned a trade and has been employed in the clothing industry ever since, whenever he can get work. He married the mother after a courtship of five years. He is very much interested in music and singing and would like to save enough money to go to Italy to have a musical education. In the last six months his health has been very poor.

The mother was brought up by a stepmother in Russia, as her own mother died when she was very young. She attended school through the second year of high school and then did private tutoring. She came to the United States in 1914 and has done sewing with dress firms. She, too, is very much interested in music and would like to study. A few months after her marriage she had a miscarriage and was desperately ill. Sammy was born ten years later. The birth was very difficult and a Caesarian operation was necessary. The mother secured her present employment through a worker of the relief agency who felt it was most important for her to have an interest outside the home and also to help out with the family's finances.

Sammy was referred to the Mary Crane Nursery School in December, 1930, by the case-worker of the relief agency, who felt that he needed to be separated from his mother for a certain time every day as she was extremely overemotional in her attitude toward him, and he was overdependent on her. He presented many of the problems of a "spoiled, only child" as he continually got his own way with both parents. When he entered the nursery school at the age of two and a half, he was still getting a bottle three times a day.

When Sammy entered nursery school he presented many personality problems, due to the mother's overemotional and oversolicitous attitude toward him. With the combined efforts, however, of infant welfare workers, the family case-worker, the nursery school, and the Institute for Juvenile

Research, the mother's attitude improved very much and Sammy showed marked improvement during the nursery-school year.

About two weeks after entering nursery school Sammy was tested on the Merrill-Palmer Scale by a psychologist of the Institute. He was thirty months old at the time. He came very willingly to be tested and was friendly and co-operative during the test period. He was markedly lacking in persistence, however, and almost constant urging and encouraging were necessary to get him to continue working on a test whenever he encountered difficulty. His general reaction to a difficult test was to stop work at once and leave the table. He was extremely restless and fidgety throughout the test period.

His comprehension of directions was excellent for his age, as was also his retention of ideas. He completed the *six-cube pyramid* in twenty-seven seconds, a test passed at the 48–53 months' level. On the *Sequin form board* he reduced his time from 155 seconds for the first trial to 61 seconds for the third trial. His motor co-ordination was excellent. Despite the fact that Yiddish was the common language of the home and he had talked it almost exclusively before entering nursery school, he showed superior language ability. He answered 11 of the 20 *action agent* questions, correctly, a test passed at the 36–41 months' level. He carried on much spontaneous conversation. His speech, however, was rather indistinct, due to infantile mispronunciations and to the use of certain Yiddish words and expressions.

According to the results of this test, Sammy rated as having very superior ability, his chronological age being 30 months and his mental age 39 months. His percentile rank was 99 and his score in terms of standard deviation norms was ± 2.5.

Robert T—A child from Winnetka Nursery School who ranked in the lowest percentile on Merrill-Palmer Scale.

Robert, age three years, is the next to youngest of five children in an American family living in Winnetka. The family live in a nine-room house which they own. There is a large yard in front for the children to play in and carefully chosen play apparatus, such as a jungle gym, sand box, trapeze, and swing, are in the back yard. There are a nurse and a cook in the home. The father is a doctor and has a very successful practice. Robert is left in the care of the nurse a great deal and he and his little sister, age two, lead a life quite separate from the three older children, who are of school age.

The mother, who was born in Minneapolis of German-American parentage, graduated from college. She states that she is much interested in her home and children but later information revealed the fact that she is away from home a great deal during the daytime, going to bridge parties, club meetings, and other social activities. For several days at a time she sees very little of the children and they are left entirely to the care of servants. The father was born in Cincinnati of an American born father and a Hungarian mother. He graduated from college and then studied medicine at Harvard. In general he spends but little time with the children as he is much interested in golf and other sports. He is also very sociable and likes to go out in the evenings. He and his wife often disagree as to methods of discipline in regard to the children.

Robert entered the Winnetka Nursery School when he was a little over three years of age. At home he presented certain behavior and personality difficulties such as jealousy of his younger sister, sulking, whining, and disobedience. He also did not get on well with the other children in the family. His mother thought that nursery school might help him overcome some of these difficulties and therefore she made application for his entrance as soon as she heard that a nursery school was to be started in Winnetka. In nursery school Robert showed a marked overdependence on his mother, a general difficulty in getting on with the other children, and whining and crying when he could not have his own way. Despite many conferences between the mother and the nursery-school teachers, these problems showed very little improvement during the nursery-school year.

Robert was tested on the Merrill-Palmer Scale shortly before he entered nursery school. At this time his chronological age was 37 months. He came readily with the psychologist to the testing room and was fairly co-operative. He frequently asked for his younger sister and wanted her with him. He was slow but careful in his work, on the whole, and in general showed good reflection. He occasionally asked for help on certain tests. He failed several tests requiring imitation—the *three-cube*, the *pyramid*, and the *pink tower*. His performance on the language tests was very poor and he did not appear at all interested in these tests. He did not answer any of the *ten questions* correctly and answered only one of the *action agent* questions.

His score on the test was inferior, due principally to his slowness of performance and to his poor language ability. With a chronological age of 37 months, his mental age was only 31 months. His percentile rank was 12 and the score in terms of standard deviation norms was -1.2.

COMPARISON OF THE TWO GROUPS ON THE MERRILL-PALMER SCALE WITH LANGUAGE TESTS OMITTED

In view of the fact that the differences between the two groups appear non-significant on the Merrill-Palmer Scale (which is primarily a performance test), and significant on the Stanford-Binet Scale (which is largely a language test), it was thought that it would be interesting to see whether the slight difference found on the Merrill-Palmer Scale would tend to disappear if the language tests were omitted. It is not possible to exclude the language factor completely, since directions for the tests are verbal, but to

minimize the language factor as far as possible, the individual test of every child was rescored with the language tests omitted.

Before doing this it was necessary to make an analysis of the language tests given, to determine whether approximately the same number of children in each group had originally received language tests. In the very nature of the Merrill-Palmer Scale (38, pp. 224–27), the language tests might have been omitted in the original score. In order that the scores with language tests omitted may be comparable to the original scores, it is important that the number who were not given any language tests originally should be about equal. Analysis of these data indicated that all but 4 (6.5 per cent) children in the Mary Crane group and all but 3 (4.8 per cent) in the Winnetka group had been given some language tests.

Table VIII shows a comparison of the two groups when the Merrill-Palmer Scale is rescored with all language tests omitted. The results for the two groups are very similar—that is, the means of the M.A., raw score, percentile rank, and score in terms of *S.D.* norms are very much the same for the Mary Crane and Winnetka groups. The significance quotients are very small, considerably less than when the two groups are compared on the basis of the entire scale.

These results, with language tests omitted, represent a slight but consistent gain for the Mary Crane group and a slight but consistent loss for the Winnetka group, as compared with results on the Scale with language tests included (consistent in that the same direction of change is found throughout in M.A., raw score, percentile rank, and score in terms of *S.D.* norms). Although there is still a very slight difference in favor of the Winnetka group, the two groups approximate each other much more closely on the Merrill-Palmer Scale when the language tests are omitted than when they are included.

COMPARISON OF THE TWO GROUPS IN PERFORMANCE ON INDIVIDUAL TESTS WITHIN THE MERRILL-PALMER SCALE

Since the above results indicate clearly that the superior scores of the Winnetka group on the Merrill-Palmer test *as a whole*, are

TABLE VIII

COMPARISON OF GROUPS A (MARY CRANE) AND B (WINNETKA) ON RESULTS OF MERRILL-PALMER SCALE WITH LANGUAGE TESTS OMITTED*

	No. of Cases	C.A. (in Months)		M.A. (in Months)		Raw Score		Percentile Rank		Score in Terms of *S.D.* Norms	
		Mean and *P.E.*[1]	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*
Group A	62	36.6±.7	8.2	37.2±.9	10.3	40.0±1.6	18.6	54.42±2.5	28.6	0.11±.1	1.0
Group B	62	36.7±.7	8.2	38.5±1.1	13.2	40.9±1.9	21.8	54.42±2.3	27.3	0.09±.1	0.9
Difference between means of A and B		(−) 0.1		(−)1.3± .9		(−)0.9±2.5		0.0±3.4		(+)0.02±.1	
Significance quotient				0.9		0.4		0.0		0.1	

* For those who are interested in the detailed results of the language tests themselves, those data are presented in Table VIII A and its accompanying text which are included in Appendix B at the end of this study.

due, at least partially, to their superior *language* ability, one is interested in knowing whether there are other specific tests within the scale on which the Mary Crane children may be the superior group. Accordingly, the results on certain individual tests were analyzed separately, and a comparison of the respective performances of the two groups upon these tests was made.

Tests were selected which were representative of motor ability and form discrimination. The tests selected as representative of motor ability were the *sixteen cubes*, *nest of cubes*, *cutting with scissors*, *Wallin peg boards A and B*, *the buttons*, and the *three-cube pyramid* tests. The *Sequin form board* test was selected as indicative of form discrimination. A detailed description of these tests, including the material used, directions given, and the method of scoring, is contained in Stutsman's book (38, pp. 182–223).

Table IX gives a detailed comparison of the two groups on the tests selected as representative of motor ability.[19] This table shows the number of children given each test, the mean chronological age of these groups, the number and percentage of successes and failures, the mean time, and the standard deviations of the distributions. The differences between the means and their "significance quotients" are also given. (In the *cutting with scissors* test, the significance quotient is given on the basis of the *percentage* of successes from each group, since this is not a timed test.) *The probable errors of the differences between the percentages* of the groups was computed by the following formula:[20]

$$P.E.\ \text{diff.} = \sqrt{P.E._{p_1}^2 + P.E._{p_2}^2}$$

Analysis of the results indicates that the performance of the Mary Crane group is better than that of the Winnetka group on the *sixteen cubes*, *cutting with scissors*, and the *peg board tests*. The

[19] According to Wellman (45, p. 271), "Motor development has, in general, been found to be slightly positively related to general intellectual development. The degree of relationship depends upon the particular combination of traits used and the particular conditions under which the relationships are obtained."

[20] This formula is based on G. U. Yule, *An Introduction to the Theory of Statistics* (London: Charles Griffin & Co., 1922), p. 269, Formula 6. Calculation was facilitated by Edgerton and Paterson's "Table of Standard Errors and Probable Errors of Percentages for Varying Numbers of Cases," *Journal of Applied Psychology*, X (1926), 378–91.

TABLE IX

COMPARISON OF GROUPS A (MARY CRANE) AND B (WINNETKA) ON TESTS REPRESENTING MOTOR ABILITY

	No. Given Test	Mean C.A. in Mos.	Successes*		Failure		Time in Seconds†	
			No. of Children	Percentage of Those Given Test	No. of Children	Percentage of Those Given Test	Mean and P.E.	S.D.
Sixteen Cubes								
Group A	50	34.8	48	96.0	2	4.0	106.8±4.7	48.2
Group B	48	34.5	43	89.6	5	10.4	113.1±5.4	52.5
Difference between A and B‡	(+)2	(+) .3	(+) 5	(+) 6.4	(−)3	(−) 6.4	(−) 6.3±7.2	....
Significance quotient	....	....	....	....	....	....	0.9	....
Probability§	....	....	....	....	....	....	between .5 and .6	....
Nest of Cubes								
Group A	45	36.9	31	68.9	14	31.1	66.4±6.7	55.6
Group B	43	33.9	30	69.8	13	30.2	39.8±4.2	34.4
Difference between A and B	(+)2	(+)3.0	(+) 1	(−) .9	(+)1	(−) .9	(+)29.6±8.0	....
Significance quotient	....	....	....	....	....	....	3.7	....
Probability	....	....	....	....	....	....	between .01 and .02	....
Cutting with Scissors								
Group A	36	32.3	25	69.4	11	30.6	....	....
Group B	34	32.0	15	44.1	19	55.9	....	....
Difference between A and B	(+)2	(+) .3	(+)10	(+)25.3±7.7	(−)8	(−)25.3±7.7	....	....
Significance quotient	....	....	....	3.3	....	....	....	....
Probability	....	....	....	.03	....	....	....	....

* By "success" is meant:
For *sixteen cubes* test: all 16 cubes placed in box (time also recorded).
For *nest of cubes* test: completed in 250 seconds or less.
For *cutting with scissors* test: 2 successive cuts (not timed test)
For *peg board A:* minimum time for 1 of 3 trials 25 seconds or less.
For *peg board B:* minimum time for 1 of 3 trials 41 seconds or less.
For *two buttons* test: completion in 170 seconds or less
For *three cube pyramid* test: completion in 17 seconds or less.

† "Failures" are not included in computing the mean time.

‡ In this table, as in III and V, (+) indicates that Group A (Mary Crane) exceeds Group B (Winnetka) and (−) indicates that Group A is less than Group B. In regard to "time in seconds," however, the group which *exceeds* the other actually performs *less well* than the other since success is measured in terms of time (except for the *cutting with scissors* test).

§ *P* is computed according to R. A. Fisher, *Statistical Methods for Research Workers* (London: Oliver & Boyd, 1930), p. 107, with the exception of differences between percentages in *cutting with scissors* test where *P* is computed according to T. L. Kelly, *Statistical Method* (New York: Macmillan, 1923), pp. 102–3.

TABLE IX—*Continued*

	No. Given Test	Mean C.A. in Mos.	Successes*		Failure		Time in Seconds†	
			No. of Children	Percentage of Those Given Test	No. of Children	Percentage of Those Given Test	Mean and P.E.	S.D.
Peg Board A								
Group A	57	35.4	57	100.0			16.1± .4	3.0
Group B	55	35.0	55	100.0			18.4± .6	6.2
Difference between A and B	(+)2	(+) .4	(+) 2				(−) 2.3± .7	
Significance quotient							3.5	
Probability							between .01 and .02	
Peg Board B								
Group A	57	35.4	54	94.7	3	5.3	21.6± .6	6.9
Group B	55	35.0	50	90.9	5	9.1	22.3± .7	7.7
Difference between A and B	(+)2	(+) .4	(+) 4	(+) 3.8	(−)2	(−) 3.8	(−) .7± 1.0	
Significance quotient							0.7	
Probability							between .6 and .7	
Two Buttons								
Group A	42	39.5	33	78.6	9	21.4	51.5	
Group B	39	40.9	27	69.2	12	30.8	45.5	
Difference between A and B	(+)3	(−)1.4	(+) 6	(+) 9.4	(−)3	(−) 9.4	(+) 6.0	
Significance quotient¶								
Probability							between .4 and .5	
Three-Cube Pyramid								
Group A	54	37.1	34	63.0	20	37.0	6.5± .4	3.3
Group B	58	37.8	35	60.3	23	39.7	6.1± .4	3.6
Difference between A and B	(−)4	(−) .7	(−) 1	(+) 2.7	(−)3	(−) 2.7	(+) .4± .6	
Significance quotient							0.8	
Probability							between .6 and .7	

¶ Significance quotients are not computed because the number of cases in this instance is less than 30.

Winnetka group, on the other hand, excels on the *nest of cubes;* on the *two buttons* and *three-cube pyramid* tests they excelled in regard to *time* but not in regard to the percentage of children "successful" (i.e., a smaller percentage of Winnetka children succeeded in passing the test, but those who did pass accomplished it more quickly than did the Mary Crane children; see Table IX and footnote). Of these differences, the following may be considered statistically significant; *peg board A* and *cutting with scissors* in favor of the Mary Crane group; the *nest of cubes* in favor of the Winnetka group. Thus in two out of six tests indicative of motor ability, the Mary Crane group may be said to excel, while the Winnetka group excel in only one.

Possible explanation for these differences may be that the Mary Crane children, being less closely supervised at home, have had more opportunity to use *scissors*, and that the *nest of cubes* is a common toy with which Winnetka children are likely to be familiar from infancy. Goodenough (15) reported that the superiority of the upper-class group found on the Kuhlmann-Binet Scale did not appear on the Wallin peg board test. She ventured the suggestion that the peg boards may measure functions different from those measured by the Kuhlmann-Binet tests.

Table X shows a detailed comparison of the two groups in their performance on the *Seguin form board*. The scoring of this test is quite complicated. If a child places all the forms in the board on two of three trials, he is given credit for successfully passing the test on the lowest age level. Additional credits are given the child, dependent upon the speed of his performance and the avoidance of false moves or errors in trying to place the blocks. Table X shows the number and mean C.A. of those children given the test, the percentage of total successes and failures, and the mean time for first and third trials. It shows the minimum time for each child, and the number of errors on the first and third trials. The mean number of errors for all the trials is also given.

The only difference which may be considered statistically significant is the mean number of errors per trial, in favor of the Winnetka group, but a larger percentage of Mary Crane children were "successful" in passing the test.

TABLE X

COMPARISON OF GROUP A (MARY CRANE) AND GROUP B (WINNETKA) ON SEGUIN FORM BOARD TEST

	No. Given Test	Mean C.A. (in Mos.)	Successes*		Failure		Time in Seconds†						No. of Errors†					
			No.	Per Cent	No.	Per Cent	First Trial		Third Trial		Minimum Time‡		First Trial		Third Trial		No. per Total Trials	
							Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*	Mean and *P.E.*	*S.D.*
Group A	53	38.1	40	75.5	13	24.5	169.5±10.9	91.8	102.9± 6.9	57.5	120.0± 8.4	78.5	11.0± .9	7.0	6.6± .7	5.6	9.8± .5	7.0
Group B	57	37.5	38	66.7	19	33.3	170.1±13.7	118.3	97.7± 8.6	74.1	99.2± 7.5	68.3	8.7±1.1	8.9	4.2± .6	4.8	6.6± .5	7.1
Difference between A and B§	(−)3	(+) .6	(+)2	(+)8.8	(−)6	(−)8.8	(−).6±17.5	....	(+)5.2±11.0	....	(+)20.8±11.2	....	(+)2.3±1.4	....	(+)2.6± .9	....	(+)2.7± .7	....
Significance quotient	....	....	....	....	....	....	0.03	....	0.5	....	1.9	....	1.6	....	2.9	....	4.0	....

* By "success" is meant at least 2 of 3 trials completed regardless of time taken.

† For a comparison of "time" and "errors" on first and third trials, only those cases were included in which three trials were completed and recorded (32 for Group A and 34 for Group B as regards time; 31 for both groups as regards errors).

‡ "Minimum time" is the shortest time for 2 or 3 completed trials (for each of 40 children in Group A and 38 children in Group B).

§ (+) indicates that Group A exceeds Group B and (−) indicates that Group A is less than Group B. In regard to "time" and "errors," however, the group which *exceeds* the other actually does less well.

SUMMARY OF FINDINGS

1. In their performance on the Merrill-Palmer Scale of tests, there is a slight difference in favor of the group of 62 Winnetka Nursery School children, who represent a high socio-economic level, as compared with the group of 62 Mary Crane Nursery School children, but the difference does not appear to be statistically significant for the number of cases in this study.

2. A greater difference between the two groups is apparent when they are compared in regard to the Stanford-Binet Scale. For the 64.5 per cent of the Mary Crane group and the 77.4 per cent of the Winnetka group who had been given the Stanford-Binet Scale, there is a difference of 18 points in mean IQ in favor of the latter. This may be considered a statistically significant difference.

3. The results on the Merrill-Palmer Scale for these two groups of children are found to overlap. Children from both groups are found among the highest and also among the lowest percentile ranks, but there is more overlapping of the two groups in the highest than in the lowest classification.

4. The slight difference between the two groups which appears when they are compared in their performance on the Merrill-Palmer Scale *as a whole* becomes still smaller when the test results *with language tests omitted* are compared. There is a slight but consistent gain for the Mary Crane group and a slight but consistent loss for the Winnetka group, as compared with the results on the Scale with language tests included.

5. On those individual tests of the Scale which represent motor ability, there is a very slight difference in favor of the Mary Crane group. The differences which appear to be statistically significant are in favor of the Mary Crane group for two out of six such tests, and in favor of the Winnetka group for one such test.

On individual tests of the Scale which represent form discrimination as measured by a series of trials on a form board test, the only difference between the two groups which appears statistically significant is in the mean number of errors per trial. This difference is in favor of the Winnetka group, but, since the percentage

of children of this group who were "successful" in this test was smaller than that of the Mary Crane group, the Winnetka group could not be said to be superior in form discrimination.

There appears to be a tendency, evident in the *two-buttons*, *three-cube pyramid*, and *Seguin form-board* tests, for those Winnetka children who do pass a test to perform more efficiently (i.e., in shorter time and with fewer errors) than the Mary Crane children, although a larger percentage of the latter achieve the minimum standard of performance necessary for "success."

F. DISCUSSION AND INTERPRETATION OF FINDINGS

The language factor.—The findings of this study indicate that the significant differences found between the test results of a group of preschool children of high socio-economic status and a similar age group of low socio-economic status are primarily due to the language factor. When tested on the Stanford-Binet Scale, there appears to be a significant difference between the groups; on a performance series, such as the Merrill-Palmer Scale, in which language is not a dominant factor, the difference between the groups is not significant; and when language tests are omitted, the difference diminishes still further. The language handicap of the Mary Crane group in this study is undoubtedly due both to their foreign-born parentage and to their lower socio-economic status. One would expect a relationship between these factors, and many studies in the literature may be cited in support of the expected.[21] But is their inferior language ability, which the tests revealed, also due to their lower intelligence? An attempt to answer this question brings one to a mass of controversial literature, to many

[21] McCarthy (24, chap. ix, pp. 278–315) in her chapter on language development, in the *Handbook of Child Psychology*, states that there is considerable evidence in the literature that indicates a marked relationship between the socio-economic status of the family and the child's linguistic development, and cites a number of studies in support of her assertion.

Gesell and Lord (13), in the study referred to earlier, found that restraint and inhibition in spontaneous speech were more prevalent among children from homes of low economic status than among children from a high economic level. The most outstanding difference in the two groups they studied was the greater amount of conversation of the children from well-to-do homes. Smith (35) in her study of preschool children reported a higher average vocabulary for children from a high socio-economic level than for those of low socio-economic status.

studies with apparently contradictory findings and the conflicting viewpoints which result.

The outstanding differences of opinion may be summarized briefly as follows: One point of view holds that language ability is a measure of intelligence. Terman (41), one of the outstanding exponents of this view, regards the vocabulary test as the best single measure of intelligence, since it correlates more highly with the Stanford-Binet Scale, as a whole, than does any other single test. The prevalence of this viewpoint among large numbers of psychologists is indicated by the fact that most existing tests of general intelligence are predominantly verbal in character.

The opposing viewpoint is that language is chiefly a product of environment, dependent upon environmental richness or paucity, and that, therefore, language tests alone should not be considered indicative of a child's native intelligence.[22]

It is impossible at the present time to determine which of these hypotheses is correct. Since the emphasis on verbal items is so marked in almost all tests of so-called *general* intelligence, and since intelligence tests are the usually accepted criteria of mental ability, the problem arises as to whether high scores on intelligence tests are due to the more precocious linguistic development of the children who achieve these high scores or whether their superior development of language is due to their greater intellectual endowment.

[22] A brief summary of the outstanding points of view on this question may be found in *Mental Tests and Heredity* (31, p. 40).

Professor Charles E. Spearman of the University of London, at one of the 1933 meetings of the American Association for the Advancement of Science, reported some interesting findings from recent investigations carried on by him and his colleagues in regard to the relation of intelligence to language. They managed to split up verbal intelligence tests into two parts, separating the *verbal* element (*V-factor*) from *G-factor*.

While not experimentally proved as yet, these investigators believe that there is good evidence for the point of view that the universal general factor *G* is either innate or at least dependent upon physiological factors which are not readily modified, whereas verbal ability is quite susceptible to modification by education and training. The experimental substantiation of this viewpoint would mean that the outstanding difference in intelligence between young children of high and children of low socio-economic status, as found in this and other studies, is one which could be diminished, if not eliminated, through education and environment.

Language development certainly appears to be intimately associated with growth in intelligence *as measured by intelligence tests*. Studies in support of this are too numerous to cite here. Smith (35) and McCarthy (23 and 24), in their studies of language development, found the relationship between language and mental age to be as close as that between language and chronological age. Terman (40) found that gifted children talked at a little over eleven months of age, about four months earlier than the average child. In all these studies, however, mental age is itself determined by intelligence tests in which success is largely dependent on language ability.

Furthermore, few psychologists today believe that mental tests measure sheer, innate mental ability, unaffected by the influence of environment and experience upon the individual whose abilities are measured.[23] Since the whole group of investigations upon the relation of language development to social status point to the existence of very marked environmental effects upon language processes in the early years of a child's life, and since we do not know whether or not these effects tend to disappear, it is very questionable whether one may say that tests in which the language element is predominant are fair measures of a child's innate mental endowment. Van Alstyne (44), in a study of 73 three-year-old children, found that a composite of environmental factors correlated slightly but consistently higher with the results of the vocabulary tests than with intelligence test results.

Verbal tests and performance tests.—The probabilities are that verbal tests and performance tests do not measure the same functions. There is difference of opinion as to whether both types of tests may be said to measure "intelligence."[24] Whether or not they do will depend on how *intelligence* is defined and on experimental evidence as to what measures it, as defined. Burks and Kelley (3)

[23] "No 'hereditarian' insists that tests measure a fixed innate power, while even the most extreme 'environmentalists' admit that biology places limits on every performance. Psychologists are unwilling to admit that any test is free from individual experience, and the general opinion is that it is impossible to construct such a test at present" (*Mental Tests and Heredity* [31, p. 252]).

[24] For further discussion of opinions and experimental evidence on this point, see *Mental Tests and Heredity* (31, pp. 66–69 and p. 248).

point out that since verbal and non-verbal test scores seldom correlate with one another higher than .60 or .70, even for American children, it is obvious that they measure about as much of what is not held in common as of what is held in common, even though both types of tests are called "intelligence" tests. They further point out that, since this is true, one cannot compare the mental ages of foreign children earned on verbal tests with those earned on non-verbal tests, and purport thereby to measure the effect of language handicap on verbal intelligence; nor can one infer from such data alone that the low scores of the foreign children on verbal tests are due to language handicap, since the verbal and non-verbal tests may be measuring different functions.

The findings of this present study appear to support this viewpoint. They indicate that children of high socio-economic status excel in those functions which are measured by verbal tests and suggest the possibility that children of low socio-economic status tend to excel in some motor tests, while the former group are superior in others. Because of these apparent differences, and since no significant difference between the two groups is apparent on a general performance test involving language (the Merrill-Palmer Scale as a whole), one would not attempt any statement comparing the general "intelligence" of the two groups until one has more conclusive evidence regarding the nature of intelligence and the relative parts which language, motor, and other abilities play in it. The question arises as to whether, without such further evidence, the constant attempts to measure the so-called general intelligence of upper and lower socio-economic groups in order to ascertain which levels are superior may not be a misguided effort, and whether research studies attempting to ascertain *qualitative* differences in the abilities of various socio-economic groups would not be more fruitful?

The results of some of the other studies of preschool children, discussed earlier, may be cited in support of the raising of this question. Goodenough and Shapiro (18) also found that the greatest superiority of the upper group was on language tests, and that in certain informational tests the upper group appeared to excel, while in others the lower group did better. For

example, the former appeared more likely to know their family name and their own sex, while the latter group succeeded better in naming coins. On the basis of these variations they suggest:

> It is highly probable that the application of a more adequate sampling of carefully classified tests to groups of young children selected according to various types of contrasted factors such as sex, social status, size of family, presence or absence of playmates of a similar age, rural or city residence, etc., would contribute much to our understanding of the nature and origin of individual variations in mentality [18, p. 362].

Also, when Goodenough discovered that the superiority of the upper-class group found on the Kuhlmann-Binet Scale did not appear on the Wallin peg board test, she ventured the suggestion that the peg boards may measure different functions, which are more evenly distributed throughout the population than those measured by the Kuhlmann-Binet Scale. She suggested that the former may be in some degree related to mechanical aptitude and the latter to potential scholastic achievement.

In view of the fact that in these several studies, including the present one, children of various socio-economic groups seem to excel in different functions, one cannot conclude from such a study as Atkins', where the mean IQ of 18 children of the upper-class group is found to exceed that of 18 of the lower group (admittedly the extremes of both groups) on a single type of perceptual and motor test, that the former have *general intelligence* superior to the latter.[25] It is exceedingly difficult to accept as an index of his "general intelligence" a child's performance on just one quite

[25] Atkins' claim that her Object-Fitting test is a test of general intelligence is based on (1) the fact that "the test situation and response meet the commonly accepted definitions of general intelligence," and (2) the fact that "the test correlates highly with an outside criterion of intelligence at each age level" (1, p. 64).

In the former she refers to the fact that she considers Binet's and Herring's definitions of intelligence exemplified in the object-fitting material. In the second point, she refers to the correlations found when she administered the Minnesota Preschool Test ("a verbal test similar to the Binet") to 125 of the subjects of her study. The correlations found were .52 for the two-year, .85 for the three-year, and .78 for the four-year level. She states that the latter correlations are as high as those frequently found for different applications of the same verbal test, and that "in year two, the correlation of .52 indicates that the two tests are still measuring the same functions to a large extent, but that certain factors gauged by one test are not gauged by the other. It appears probable that ability to use and understand spoken English is the most significant of these factors."

simple type of motor test, based on his perception of the material, which can be administered in from four to twenty minutes. It does not seem reasonable to believe that such a test can measure the same functions as do the varied scales composed of verbal and performance tests (such as the Merrill-Palmer used in this study) which attempt to sample the many varied abilities which go to make up so-called general intelligence.

Socio-economic status and intelligence.—It is true that the positive relationship between socio-economic status and intelligence has come to be a commonly accepted fact. The studies of children's intelligence, cited in the introduction to this paper, as well as many others that might be added, and also studies of adult intelligence in relation to the army tests and occupational status—all appear to support this position. Such a general assertion as that made by Goodenough and Anderson (17, p. 235) indicates how thoroughly accepted this viewpoint is by careful, scientific authorities—

> Upon the average, children who come from the better socio-economic classes stand higher on intelligence tests, are more advanced in language, sleep more, have more toys, are less likely to fail in school, and so on through a long list of related characteristics which cannot be completely enumerated here.

In no other study of preschool children, with the exception of Furfey's study referred to earlier, do the results place the group of lower socio-economic status in so favorable a light as in this present study. This may be due to the use of the Merrill-Palmer Scale. On the other hand, it may be due to factors which entered into the selection of subjects in both this and the other studies. Both Goodenough and Atkins admit that their upper and lower occupational extremes were somewhat exaggerated because the upper groups were secured mostly through voluntary applications, whereas the lower were secured through social agencies. Goodenough's professional group was made up largely of the children of university faculty members. Both authors point out that the variability of performance for their upper and lower groups is, therefore, probably somewhat greater than would be found for a truly representative sampling of the population of the city.

Selective factors also enter into this study, since both were nursery-school groups. Occupation of father was not the criterion of socio-economic status used in selecting the subjects; the Mary Crane group includes ten fathers in the upper two occupational classifications, and the Winnetka group is overweighted with fathers of the professional class (see Table IV).

Furthermore, even though both groups attended nursery school, it may be argued that such school experience is a very different factor in the life of a poor child than it is in the case of a child from a typical Winnetka home. It may be that this group of children from the Hull-House district have so benefited from their attendance in the Mary Crane school that they are not typical of the neighborhood. Even though an earlier study made by the Preschool Department of the Institute indicates that nursery-school attendance does not affect a child's mental growth as measured by the Merrill-Palmer Scale (22), it is possible that quite different results might have been obtained in this study if two non-nursery school groups from these same two areas had been compared. If that is true, however, it would seem to indicate that the differences in intelligence between young children of high and those of low socio-economic status are a product of environment rather than of innate factors.

Another factor that may account for the difference between the results of this and other studies is the foreign-born element. In other investigations, such as those of Pintner (28) and Keller (29), on children of school age, there was found to be less difference between children from English-speaking homes and from foreign-speaking homes on performance tests than on tests involving language. Accordingly, any investigator attempting to study differences in intelligence between socio-economic groups is inclined to eliminate the language factor by excluding the child with such a foreign-language handicap. In the study of Goodenough and Shapiro, all cases with foreign-language handicap were excluded, while, in her own study, Goodenough (16) points out that a greater percentage of native-born whites were included among the parents of her subjects than among the general adult population of the city.

As stated earlier, the present writer believes it probable that the exclusion of all cases with foreign-language handicap lowers the level of intelligence for the lower socio-economic group. The percentages of native- and foreign-born parents found among the Mary Crane subjects of this study appear to be approximately those found in the general Chicago population. Table V shows 22 native-born fathers as compared with 30 foreign-born, and 28 native-born mothers as compared with 24 foreign-born. In the Burgess and Monroe studies discussed in detail in chapter V, the percentage of native-born fathers was found to be 43 and the percentage of native-born mothers was found to be 52 for the Chicago area. The parents of the Winnetka subjects are, with a few exceptions, native-born.

Whatever may be the reasons—and it is not possible to analyze them with certainty—the facts are that in this present study the difference between the two groups, when tested on the Merrill-Palmer Scale as a whole, do not appear to be statistically significant for the number of cases in the study. Obviously, the number of cases included is too small to warrant any very definite conclusions, but certainly the findings justify raising the question of whether the viewpoint that a positive correlation exists between socio-economic status and intelligence, which has been so definitely accepted in regard to school children and adults, should be accepted for preschool children until much more extensive research has been carried out on this problem.

Goodenough (16, p. 294) in a critical discussion of her findings, says:

> The finding of such marked intellectual differences between social classes as early as the age of two years must be regarded as highly significant. The fact that no appreciable change takes place in the position of the various occupational groups from the age of two to the close of the elementary school period affords strong evidence that the underlying factors, whatever may be their nature or origin, are non-cumulative in their relative effect upon mental development. Furthermore, while one may plausibly advance the hypothesis that the home of low cultural standards does not afford a sufficient opportunity or an adequate stimulus for the acquisition of the more complex and precise language concepts or the fund of general information necessary to achieve a notable degree of success within the tests standardized at the upper age levels, it is less easy to understand the process by

which these factors serve as a handicap to the two-year-old judged upon the basis of his response to such simple commands as, "Throw the ball to me"; his ability to name simple objects; or to draw a rough circle with considerable help. Even the least cultured of modern city homes provide, it would seem, adequate opportunity for the acquisition of these early accomplishments of the young child. The fact that children of different social classes show as great differences in their performance of these extremely simple tasks as they afterward manifest in regard to the relatively complex problems of later life, lends support to the theory that under ordinary conditions of modern life, variations in mental growth are more directly dependent upon innate factors than upon differences in post-natal opportunity or stimulation.

Do the facts available "lend support to the theory that variations in mental growth are more directly dependent upon innate factors than upon differences in post-natal opportunity or stimulation"? From these studies on preschool children, especially this present one, does it not also seem possible to find support for the opposite theory—that variations in mental growth are more dependent on environment, and that children tend to excel in those particular types of activity which have been stimulated by their environment and experience? The preschool child of low socio-economic status has had, in these first few years of life, only the experience of his extremely meager and very inadequate home background. Our experience leads us to believe that many homes at the lowest level do *not* provide adequate opportunity for the acquisition of even the simplest patterns of performance called for in tests such as those mentioned by Goodenough above. There is reason to believe that when the child from such a home gets out into the world about him—at school and otherwise—he may reach a higher level of development under more stimulating environment and experience.

The fact that studies of older school children have failed to show this potential improvement may be due partially to the fact that most intelligence tests, on which the inferiority of the lower socio-economic group have been demonstrated, have been chiefly *verbal* tests. May it not also be due somewhat to the fact that we have never sought to discover through our tests what are the special inadequacies of the underprivileged group, *with a view to trying to overcome those inadequacies* by education and enriched environment?

Evidence in support of the possibility that an enriched environment, especially if provided at an early age, would raise the level of a child's intelligence is found in Freeman's (9) study of foster children. For a group of children tested before placement and retested after living several years in foster homes, a significant improvement in intelligence (as measured by intelligence test scores) was found. Children in the better foster homes gained considerably more than did those in the poorer homes. *Furthermore, the children who were tested and adopted at an early age gained more than those adopted at a later age.*

Careful consideration must be given to the results of studies concerning the relationship of adult intelligence to socio-economic status, before applying their implications to similar studies of children. In such studies, parents and children must be considered separately; while it is the child's own intelligence which is measured, his socio-economic status is, in a sense, that of his parents. It must be remembered that when intelligence tests are given to *adults*, the upper socio-economic levels include not only those who were born into those levels but also many *who have had the capacity and opportunity to raise* themselves to those levels, while the lower group are composed of those who have perhaps lacked the opportunity *but may also have lacked the capacity or the ability to rise.* The child of preschool age who is born into this lower level also lacks opportunity, but since he has not yet had a chance to "prove himself," should we not hesitate to say that he also lacks innate *capacity?*

Goodenough, in a discussion of the studies on this problem available in 1929 (see *National Research Council Report of the Third Conference on Research in Child Development*, held in Toronto, Canada, May 2–4, 1929), suggested that on the basis of such little information as was available the hypothesis which seemed most plausible was that the intellectual difference between social groups may not be innate, but may be dependent upon acquired reaction-tendencies which are largely established during the first two years of life. If this is a probable hypothesis, and in view of the qualitative differences suggested by this study, it would seem desirable to carry on further studies to discover such *qualitative*

differences in the abilities of preschool children,[26] with the ultimate objective of seeing whether the abilities in which *any* group of children appear inferior may be improved by education especially directed to these ends.

CONCLUSIONS

The purpose of this study was to compare a group of young children of low socio-economic status with a group of similar age and of high socio-economic status, especially as regards their performance on the Merrill-Palmer Scale. Children attending the Mary Crane Nursery School and the Winnetka Public School Nursery were selected as representing obviously low and high status. There were 62 children in each group; they were paired for chronological age. Foreign-born children and children of foreign-born parents were included as found in the groups.

It appears from this study that the significant differences found between the test results of a group of preschool children of low socio-economic status and a similar age group of high status are primarily due to the language factor, and that the former group are superior in their performance on certain non-verbal tests. These conclusions are based on the following facts: (1) there appears to be a statistically significant difference between the two groups, in favor of the higher socio-economic level, when the children are tested on the Stanford-Binet Scale; (2) while there is still a slight difference in favor of the group representing high socio-economic level, this difference does not appear to be significant for the number of cases in this study, when tested on the Merrill-Palmer Scale, in which language is a less dominant element; (3) this slight difference found on the Merrill-Palmer Scale as a whole

[26] That qualitative group differences do exist is further borne out by the *sex* differences that have been found. As indicated earlier in this study, girls appear to excel boys on the Stanford-Binet test, while no such superiority is evident on a performance scale such as the Merrill-Palmer. Goodenough, reviewing the data in the literature on this problem (at the Toronto Conference referred to above) finds "small but consistent differences in the pattern or profile of abilities which characterize the sexes. Girls upon the whole seem to exceed boys in use and comprehension of language and in reproduction and memory. Boys excel in number concepts and in range and extent of general information. The differences are small and there is much overlapping between the sexes, but the general trend seems to remain much the same from early childhood to maturity."

becomes still smaller when language tests are omitted; (4) analysis of individual tests within the Merrill-Palmer Scale indicates that children of the low socio-economic group excel in some motor tests, while the high socio-economic group excel in at least one such test.

These results support the theory that verbal and performance tests measure different functions, and suggest the possibility that children of low socio-economic background excel in certain types of functions, while those of high, excel in others. Since only a few individual tests within the Merrill-Palmer Scale were analyzed[27] and only a relatively small number of children are included in this study, some of these variations may be due to chance, but one naturally questions whether they may be due to the differences in environment and experience of the two groups of children.

One of the most important tendencies revealed by this study is that the results on the Merrill-Palmer Scale are found to overlap for these two groups of children. Similar tendencies have been found in studies of older children. It means that even though there is a mass tendency for high IQ's to be associated with superior social and economic status, and vice versa, no prediction with regard to these two variables can be made with respect to an individual case. Children from both groups are found in the highest and also in the lowest percentile ranks. This implies the possibility that individual children may rise to intellectual heights quite out of line with the expected as based upon their social and economic backgrounds, or that others may fail to reach their expected intellectual levels.

The number of cases and extent of this study are obviously too small to warrant any definite conclusions regarding the specific types of functions in which children of high and of low socio-economic backgrounds may excel. Studies of subjects representing different types of communities might not yield similar results. These results, however, suggest a possible trend worthy of further study—namely, might it not be well to substitute for research

[27] Since in using the Merrill-Palmer Scale not all tests are given to every child, some individual tests could not be so analyzed because the number of children given the tests was too small for statistical treatment.

studies which constantly seek to ascertain which socio-economic group has superior intelligence, studies which attempt rather to discover the *qualitative* differences in the abilities of children from different socio-economic backgrounds? To develop all abilities of all children to uniform levels is not our educational objective, but if qualitative differences between groups (such as are apparent in the results of this study) can be discovered at the preschool level—*whether they be innate or acquired*—it may be that those functions in which any group is handicapped by its inferiority may be found to improve with especially directed educational and environmental opportunities.

APPENDIX TO STUDY ONE

A. SOCIO-ECONOMIC STATUS

Socio-economic scales.[28]—One of the earliest attempts to measure the home background of children and to rate the home in terms of a score was that of Williams, "The Whittier Scale for Grading Home Conditions" (46). His procedure was to have a social case worker visit the home and give an arbitrary weighting on necessities, neatness, size, paternal relations, and parental supervision. A "Standard Score Sheet," giving samples of homes with reference to the above points, was provided as a guide for the worker in making these weightings. The score of the home was the total of these weightings. The Whittier Scale is criticized by Sims (33) on the ground that Williams failed to state how he determined the weighting of the various items within the total or how he scored each item.

Holley (20) devised a quantitative method for measuring home background which he called a "family index," by combining average education of the parents, number of books in the home, and amount of monthly rental paid for the home. Holley believed that the quantitative combination of these three indices gave a measure of the total complex which represented the differences in the opportunities presented to the children by their respective homes.

[28] A critical discussion of this subject will be found in *Experimental Child Study*, Goodenough and Anderson (17), chap. xxvii, pp. 234–44.

Sims,[29] seeking a method that would be practical for use with very large numbers of children, formulated a scale that did not necessitate a visit to the home, as did the Whittier Scale, and included many more indices than the three-factor index of Holley. His investigation was based upon questionnaires, including 55 questions, submitted to children in the sixth, seventh, and eighth grades of six public schools in the city of New Haven, Connecticut. It probably represents to date the outstanding attempt to measure socio-economic status in quantitative terms.

In introducing the scale which he developed for measuring socio-economic status, Sims says:

> The measure used is based upon the answers to a series of questions asked of school children. These questions are concerned with such things as the occupation of the parents, the possession of books and magazines, the physical necessities and luxuries provided in the home, and the outside contacts of the parents and children. It is felt that the possession of items asked for in the questions is indicative of some more general possession which has been called the *socio-economic status* of the family. If pressed as to what is meant by "socio-economic status," one is compelled to answer that it is whatever this instrument measures. This, however, is a useless subterfuge. The need for some label which is generally interpretable is urgent. By socio-economic status is meant nothing more than the possession or non-possession of traits such as those above mentioned. If these traits are present, presumably the child has, both from the cultural and economic standpoint, a more favorable environment than he would have if these characteristics were absent. Furthermore, it is reasonable to suppose that the more characteristics existing, the more favorable the environment. The final significance of the complex actually measured will need to be tested by the use of the measure in various situations [33, p. 5].

Obviously, to get a fairly complete picture of the socio-economic status of a family, one should know the income of the family (and not merely that of the head of the family), the occupations of the parents, the education of the parents, the housing conditions under which the family live, and something of their intellectual

[29] For details of this scale see V. M. Sims, *The Measurement of Socio-economic Status* (Bloomington, Ill.: Public School Publishing Co., 1928). Sims's formulation of this scale was preceded by a preliminary study carried on in the New Haven high schools, J. Crosby Chapman and V. M. Sims, "The Quantitative Measurement of Certain Aspects of Socio-economic Status," *Journal of Educational Psychology*, XVI (1925), 380–90.

and social life. The use of such measures as the Whittier and the Sims scales, however, represents a great amount of labor, and where socio-economic status is only one factor in an investigation it may be difficult to include so elaborate a technique. Also, the Sims Scale cannot be applied in studies of preschool children, except by using the questionnaires in cases where there are older siblings to fill them out (33, p. 31).

For these reasons it has come to be a quite common practice to use one or two factors as indices of the socio-economic status of the family. When only a single index is used, occupation of father is the one most commonly selected, but such items as education of parents, nationality of parents, income, type of neighborhood and dwelling in which the family live, possession of the home, the number of rooms per persons in the household, whether or not the family has been known to social agencies, property values or tax assessments (37), and even such details as the possession of a telephone have been used as indices of the socio-economic standing of the family.

Occupation of father.—As indicated above, the most commonly accepted single index of socio-economic level is the occupation of the head of the family. This perhaps is a challengeable assumption. One may well question, for example, whether the "professional" group will come first on an *economic* scale, even though it might on a *social* classification. Certainly there are individual instances in which it is an inadequate or misleading criterion on which to base generalizations regarding a family's social and economic position, but it is probably the most significant single factor and as adequate as any one index can be.[30]

The prevalent use of *occupation of father* as a criterion for the social and economic status of the family has led to the formulation of various classifications for occupational groups and attempts to

[30] Sims found that the bi-serial coefficient of correlation for occupations of fathers and the average socio-economic score of the family, determined from the total of all other questions, was 86. Of the 55 questions included, only two other correlations were equally high; the correlation for servants was 87 and for golf 86, but these were not commonly possessed factors. Thus, he found occupation of father appeared to measure the total complex which he designated as "socio-economic status" to a larger degree than any other factor that was common to most children.

rate or score them. It is exceedingly difficult to make a classification that adequately distinguishes the various levels found within any single occupational group. For example, a man is listed as a musician; he may be a distinguished member of a symphony orchestra, or he may be a player in a cabaret or cheap dance hall. There would be a considerable difference in the economic status of the families of two such men, and there would probably be a very great difference in the social and cultural levels of their respective homes. Another difficulty lies in the wide variation of socio-economic levels represented within any occupational group, such as "public officials" or "skilled labor."

Among the outstanding attempts at occupational classification with rating either included or implied, are the Taussig (39), the Sims (33), and the Minnesota scales (14, p. 12), the latter based on the Barr and Taussig scales. Another interesting six-group classification may be found in an unpublished thesis by Monroe, "Chicago Families: A Study of Unpublished Census Data" (25). Counts (5) selected 45 vocations and submitted them to 450 persons, representing chiefly teachers and student groups, who rated these vocations according to their estimates of the social standing of the occupations. Barr (2) listed occupations according to intelligence level demanded for success in the occupations; the number of units of intelligence required was based on the ratings of 30 judges. Fryer (10) indexed 96 occupations according to average intelligence scores on the Army Alpha and "Business Alpha" tests.

In most of these classifications, rating is based either on the social standing of the occupational group or on the level of intelligence demanded for the successful pursuit of a vocation; the purely economic aspect represented by monetary return has usually been a secondary or incidental consideration in these ratings. The writer has been unable to discover any investigations in which carefully grouped occupations have been studied in their relationship to numerous other factors, to determine in how far these occupational classifications are valid and reliable criteria of general socio-economic status.

Efforts to establish such quantitative measures for determining

socio-economic status should be genuinely appreciated, as the need for such a measuring scale is an insistent challenge in many present-day social, educational, and psychological studies. It is very important, however, that in studies where effort is made to differentiate homes of "low" and of "high" socio-economic status, as determined by such factors as those discussed in the foregoing pages, high socio-economic status should not be accepted a priori as necessarily constituting a "good" home for a child, nor low socio-economic level as necessarily a "poor" home. There seems to be a tendency in the literature to make this assumption; perhaps it arises partly out of loose usage of the word "poor" to indicate either a home of low economic level or an "undesirable" home. What constitutes a favorable environment for a child is a far more subtle problem than mere enumeration of factors in his physical environment and background, or even such items as education of his parents, language spoken in the home, club memberships, social life, or church affiliations. Anyone who has worked with children from a variety of homes covering the so-called socio-economic range of a community is keenly aware of the fact that the home of the upper levels is not necessarily the more desirable environment for the development of a child; nor is the reverse true.[31] The Whittier Scale (46) does attempt to weight the home in regard to parental relations and parental supervision, but certainly is far from adequate as a quantitative evaluation of parental attitudes, parent-child relationships, parental wisdom, emotional tone of family life, and other significant but elusive attributes which seem to defy precise measurement.

While we certainly should not assume that differences between desirable and undesirable homes are necessarily qualitative and hence not subject to measurement, it is extremely difficult to formulate quantitative statements which can satisfactorily evaluate the subtle emotional, intellectual, and behavior characteristics which are of basic importance in differentiating between the

[31] In a study of the relationship between the Sims Socio-economic Rating Scale and certain delinquent and non-delinquent juveniles, it was found that the Sims Scale does show a rather marked difference between the average score of the non-delinquent and delinquent groups, the home of the non-delinquent juvenile rating the higher (42).

"good" (in the sense of the *desirable*) from the "poor" (the *undesirable*) home for a developing child. Furthermore, in ultimate practical application, even a home which would rate "good" on a scale which represents a well-standardized instrument of measurement must be considered in relation to the individual child; it might not be the most desirable home for a certain type of child.

B. COMPARISON OF MARY CRANE GROUP (A) AND WINNETKA GROUP (B) ON LANGUAGE TESTS OF THE MERRILL-PALMER SCALE

The numbers of children in this study who were given each of the language tests of the Merrill-Palmer Scale are shown in Table VIII A, with the mean chronological age of the children given each test, the number and percentage of those who refused the test, the mean number of correct responses given for each test, and the standard deviation of the distribution. The *repetition of words* is the easiest of these tests, appearing only at the lower age levels. Next in order of difficulty come the *repetition of word groups* and the *questions*, and the hardest is the *action agent* test.

The differences between the means are given; probable errors of these differences were computed by the formula cited earlier and the "significance quotients" (the ratios of the difference between the means to the probable errors of those differences) are indicated.

The only difference between the two groups of this study, as regards language tests, which appears according to statistical analysis to be a significant difference, is on the *action agent* test. On the three easier language tests, appearing at the lower levels of the Merrill-Palmer Scale, there is only a very slight difference in favor of the Winnetka group.

These differences are slightly more in favor of the Winnetka group on the easier tests than they appear to be, because it is obvious from the table that the Mary Crane group have an advantage in chronological age on these tests. This was due to the psychologist's recognition of the language handicap of this group, so that the examiner tended to give even the older children of the Mary Crane group the easier tests and the younger children of the

TABLE VIII A

COMPARISON OF GROUPS A (MARY CRANE) AND B (WINNETKA) ON LANGUAGE TESTS OF MERRILL-PALMER SCALE

	No. of Children	Mean C.A. (in Months) of Children Given This Test	Refusals		No. of Responses Correct	
			No. of Children	Percentage of Those Tested	Mean and *P.E.*	*S.D.*
Repetition of Words						
Group A	46	34.0	7	15.2	3.9±.1	0.5
Group B	39	31.9	1	2.6	4.0±.02	0.2
Difference between A and B*	(+) 7	(+) 2.1	(+)6	(+)12.6	(−) .1±.1	....
Significance quotient	.....	.....	.....	.....	0.9	....
Repetition of Word Groups						
Group A	45	34.6	7	15.6	11.2±.4	3.2
Group B	40	32.2	1	2.5	12.1±.2	2.2
Difference between A and B*	(+) 5	(+) 2.4	(+)6	(+)13.1	(−).9±.4	....
Significance quotient	.....	.....	.....	.....	2.0	....
Questions						
Group A	45	34.0	7	15.6	5.7±.3	2.8
Group B	39	32.3	1	2.6	6.2±.3	2.3
Difference between A and B*	(+) 6	(+) 1.7	(+)6	(+)13.0	(−).5±.4	....
Significance quotient	.....	.....	.....	.....	1.3	....
Action Agent						
Group A	35	38.6	2	5.7	6.6±.6	5.3
Group B	52	37.9	0	0	9.3±.6	6.2
Difference between A and B*	(−) 17	(+) 0.7	(+)2	(+) 5.7	(−)2.7±.9	....
Significance quotient	.....	.....	.....	.....	3.2	....

* (+) indicates that Group A (Mary Crane) exceeds Group B (Winnetka); (−) indicates that Group A (Mary Crane) is less than Group B (Winnetka).

Winnetka group the harder tests. On the *action agent* test, however, where the difference between the two groups does appear to be significant, the mean chronological age is approximately the same, there being only seven-tenths of a month difference. Only 48.6 per cent of the 35 Mary Crane children who were given the *action agent* test passed, whereas 67.3 per cent of the 52 Winnetka children given the test passed it, and a larger proportion of the Winnetka group passed at the higher age level.

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CHAPTER VII

STUDY TWO: SOCIAL ADJUSTMENT IN CHILDREN OF PRESCHOOL AGE[1]

A. REVIEW OF THE LITERATURE

The importance of social relationships between individuals and groups has been discussed by many writers. John Dewey's social interpretation of life, with his fundamental idea that we *are* by reason of those about us, has particularly emphasized the significance of social interaction. "A being connected with other beings," he points out, "cannot perform his own activities without taking the activities of others into account. For they are the indispensable conditions of the realization of his tendencies" (17, p. 14). That this same principle applies to the larger social groups, and that social interaction between individuals forms the basis for the functioning of communities, countries, and world-wide relationships between nations seems obvious, but is still too little recognized in practical application. Certainly the lack of understanding and lack of co-operation among groups in communities, as well as among nations, has made us realize the necessity for learning more about the genesis of social behavior and the possibilities for social control through education of the individual.

Recognition of the importance of social adjustment is stated from a somewhat different viewpoint by the Allports (3, p. 7).

> The true criterion of personality is without doubt to be found in the field of social interaction. We are incapable of giving a complete popular description of personality without indicating the manner in which the personality in question stimulates or influences other human beings and the manner in which the behavior of other human beings produces adjustments or responses in the personality in question. . . . . In general it may be said that the aim of personality measurements is the establishing of adjustments between an individual and his fellows which are a benefit to both.

[1] Maria G. Linder secured part of the data used in this study, analyzed the case records of the department to extract data on social adjustment, and assembled them for statistical analysis. Miss Linder also assisted in reviewing the literature on social adjustment.

Since social relationships are indispensable to the realization of the potentialities of an individual or a group, the development of adequate social relations is one of the essentials for the mental health of each individual. Burnham says:

> It is better for a child's mental health to eat and play and work and study with other children than alone or merely with adults. To act with others as follower or leader, to serve, to co-operate, on occasion to resent, or to fight, represent healthful attitudes and healthful forms of activity; to deceive, to act cruelly, to be suspicious, to hold a grudge, represent unhealthful as well as unsocial mental attitudes [15, p. 664].

Burnham feels that perhaps the greatest contribution of mental hygiene will be to show the importance of social adjustment as a factor in mental health. He says:

> Most of the candidates for mental disorder show in childhood or at adolescence certain abnormal symptoms in their social life. They are unsocial, antisocial, or, at least, social failures. If mental hygiene did no more than show the importance and complexity of the problem and suggest a method by which it may be solved, this in itself would be worth while [15, p. 231].

Other writers have shown that guidance and experience in social relationships should be considered an important part of the child's very early training. It is in the first years of life, they believe, that the behavior patterns of an individual are established. "Very early in life," says Anderson, "almost at the cradle, our social schooling commences. . . . . The behavior of the adult toward persons has its genesis in the behavior of the child toward persons" (5, p. 90).

Baldwin and Stecker state that "the study of normal as well as abnormal psychology shows that the earlier a child makes its social contacts and feels itself an integral part of a community, the easier does its adjustment come to the requirements of adult life" (6, p. 265).

When one turns to consideration of the *factors* that are regarded as important in relation to the social behavior of the child, one finds in the literature a number of different factors which are discussed by various writers. Important ones among them might be summed up as follows:

Some writers explain the child's social behavior almost entirely

as the result of *instincts*. The environment, they feel, may influence behavior to a certain extent but the instinctive drives are more fundamental. Some find that, on the basis of such instinctive drives, the theory of the *conditioned reflex* seems to provide an explanation for at least the simpler forms of social reaction (25).

The child's *chronological age* or his *developmental* level as a very vital factor in the child's relationships is discussed by a number of writers and investigators.

A vast amount of work has been done by Gesell and his associates on various aspects of the development of infants and preschool children. He has published *developmental schedules* representing "norms of motor, language, adaptive and personal social behavior" (20), and has defined developmental levels from birth to the sixth year.

Observing 16 average preschool children brought to the Yale Psycho-Clinic, Gesell paired them on a scale of ascending ages so that a younger child was always compared with a child a few months older (20). He found that it was invariably the older one who showed the greater maturity of personality make-up. This was even true when the younger child was physically of a taller and stronger build than the older.

A number of studies on the social behavior of infants and young children have been made by Charlotte Bühler and various assistants working with her. Bühler (14) reports that she observed and described three types of social behavior in infants from six to about eighteen months of age. She calls these types *the socially blind*, *the socially dependent*, and *the socially independent* behavior. These types were found to occur independently of whether or not the children had had previous contacts with others, also independently of whether or not they were only children, independently also of their home conditions, and even of their nationalities, as these studies were made in an immigrant neighborhood in New York. Bühler therefore considers it very probable that these typical attitudes depend on a *primary disposition* and not on *environmental conditions*, although she points out that it remains to be seen whether these pioneer observations will be confirmed by other authors.

Thus Bühler's conclusions point very definitely to "stages of development" (13, p. 168)—*Entwicklungsstand* (12, p. 9)—as the most important factor in the child's social relationships, at least in children below one year of age. She says, "Die Eigenentwicklung oder Reifung lässt auf genau den gleichen äusseren Reiz heute ein Verhalten sich einstellen, das gestern noch nicht möglich war—sich spontan, sich activ einstellen, können wir hier nun sagen." . . . . . "Bei allen Kindern auf der Welt, ganz gleich welche Sprache sie um sich hören, ist diese erste Lautbildung gleichartig, weil entwicklungsbedingt, nicht reizbedingt" (12, p. 9).

Parten[2] (31), analyzing social participation, leadership, and other factors in preschool play groups, found that social participation was largely dependent upon the age of the children; there was a very slight relation between intelligence quotients and the child's degree of social participation; also between nursery-school experience and social participation.

Intelligence and its relationship to social behavior has also been studied by investigators, usually in connection with chronological age. Berne (10) made an investigation of 132 preschool children between one and five years of age. She obtained ratings on thirty social behavior traits for 82 children, experimental scores on four traits, such as obedience, interest in group, and respect for others' property rights, for 59 children, and observations of the behavior of 12 children. She found the rating method used in her investigation a reliable technique for the study of social behavior of young children. Her findings are mainly of interest from the point of view of methodology but also showed some interesting trends. She found a large number of social behavior patterns in children from two to five years of age. Certain traits change from one chronological age group to another. In other traits, individual differences are of more significance than age differences. Mental age, as determined by the Stanford-Binet and the Kuhlmann-Binet tests, is, she found, related to a large number of traits such as participation, criticism, co-operation, and responsibility for others.

[2] Our statements regarding Parten's findings are taken from the Murphys' (28) report of this dissertation.

Thomas (36) and her associates tried out some new techniques for studying social behavior. Realizing the complexity of social behavior, they tried to break up "behavior-complexes" into relatively simple units that would yield genuinely quantitative data. Thus, in a study by Barker (7), materials used by sixteen two- to three-year-old children, social contacts made, and space covered by them were recorded by independent observers. The findings of this preliminary study are of interest in regard to methodology, but also indicate some trends that are of interest in connection with the present study. Barker found that for children of the age range from 2 to 3 years there is little relationship between mental age (according to the Kuhlmann-Binet Scale) and number of activities per unit of time, space covered, or activities dealing with material objects. There is, however, a small positive relationship between mental age and number of social contacts.

Another study by Hubbard (24) describes spontaneous group formations (defined as two or more children playing together) of children 21–39 months old. She found large individual differences in the percentage of time spent in social situations. On the average this group of children spent about half their time in groups. Her general conclusion as to the relationship of age and intelligence to social behavior is as follows:

> The child with higher chronological age and mental age seems to spend a larger percentage of time in social situations. Percentage of time spent in social situations at this age may perhaps be an indication of maturity [24, p. 83]. [Also], According to these data, then, the children who play together in the largest number of situations are not those who spend similar amounts of time in social situations nor those of similar ages; but those of *similar mental ages* seem to play together in the largest number of situations [24, p. 84] . . . . . Intellectual maturity seems to be a factor both in time the child spends in social situations and in the selection of the group with whom he plays [24, p. 85].

Hollingworth (p. 23), on the other hand, describes the difficulties that highly intelligent children (by this meaning children with intelligence quotients of 130 or above) encounter in their social relationships.[3]

The importance of the child's *physical condition* in its relationship to social behavior has been mentioned by some writers and has been given considerable attention by Alfred Adler (2), who describes certain feelings of inferiority based on organic defects (*Organminderwertigkeit*).

[3] See also discussion of her point of view on page 255 of this study.

While fully recognizing that the child's physical equipment with its reflexes and capacities plays an important part, many authorities believe that social behavior is largely the result of the interaction between the child and his *social environment.* It is the contacts with his parents, his brothers and sisters, school and neighborhood, that determine to a very large extent the development of the child's social behavior patterns. Gesell says:

> The development of personality make-up is infinitely more complicated and baffling than the development of intelligence . . . . . It (the development of personality) is profoundly conditioned by metabolic and physiological factors and by racial and temperamental elements which are hereditary. But the personality is so dynamic, so reactive to all stimuli within its exploitation, so impressionable to stimuli beyond its control, that its structure and its overt actions reflect at every turn the influence of its social environment [20, p. 285].

Again, in regard to the environmental factor, one finds Alfred Adler (2, chap. iii) dividing the obstacles which a child meets with in the development of his "soul" into two chief groups. There are those which arise out of defects in the child's physical environment (such as originate in abnormal relationship in his economic, social, racial, or family circumstances) and there are those which arise out of organic defects of the child's body. In the former group he includes difficulties which may arise when the normal tenderness of parents toward their children is not manifested to a proper degree. He feels, however, that a pampered child, as well as an unwanted one, labors under great difficulties. Adler comes to the conclusion that all phenomena of this type have in common the fact that they tend to stunt or distort a child's social feeling, resulting in a greater or lesser isolation of the child.

Among the environmental factors mentioned by Alfred Adler and other writers as important in molding the child's relationships to other children and other people, the *number of children in the family* and the *child's place in the family* (i.e., whether he is an only child, or the oldest, youngest, and the like) have been given

special emphasis. Popular conception has for a long time held that the *only* child in the family is likely to have great difficulty in his adjustment to other people. Alfred Adler frequently describes the difficulties later encountered by such children whose parents have placed their whole educational zeal upon their "only" child.

There is considerable disagreement found in literature dealing with systematic investigations of this question. Friedjung (19) found that neuro-pathological traits were particularly frequent among "only" children and Burt (16) found a higher percentage of "only" children in a delinquent group than in a non-delinquent group. Ward (39) in a study of case records of 100 "only" children brought to the Institute for Child Guidance in New York City found that, compared with a control group of children coming from three-child families, the "only" children showed a higher percentage of restlessness and overactivity, crying, nail-biting, and school difficulties. There was also a larger percentage of unpopularity among the "only" children than among the other children.

Other studies, however, have failed to substantiate the position that "only" children are in any way very different from children coming from larger families. Stuart (35), for instance, in giving Colgate-Mental Hygiene tests to 465 men, 81 of whom were "only" children, found that "only" children showed no variations from the group as a whole in their responses to the test. Fenton (18), studying 193 unselected pupils from public schools, found that the 34 "only" children displayed fewer nervous symptoms than did any other group. They were slightly more inclined to be leaders and to be unpopular. In a study of another group consisting of 512 college students, 73 of whom were "only" children, who were given the Woodworth Questionnaire (a mental hygiene inventory), Fenton found that the "only" children were not significantly different from the others. The findings of several other investigations, among them Bellerose (8) and Levy (27), were very similar to those just mentioned.

That the oldest child in the family, however, is likely to have special difficulties, both in his general adjustment as evidenced by the frequency of all behavior problems and in his social adjustment, has been found in most of the investigations of this question.

Goodenough and Leahy (21) report a study undertaken at Minneapolis and St. Paul in which certain family relationships, and, more specifically, "sibling relationships" and their effect on the development of personality, were studied. This investigation was based on 322 cases from the files of the Demonstration Child Guidance Clinic which was conducted in the Twin Cities during 1923–24. They report that their findings are "in general agreement with those which have been reported by other workers, in that the number of oldest children is disproportionally large" (21, p. 49).

In regard to the differences in the types of behavior which had brought the children to the attention of the clinic, the findings are inconclusive because of the complexity of the material. Among the possible trends, which the authors mention, however, is the fact that the oldest children, as a group, showed few outstanding tendencies in relation to specific behavior problems, but generally high frequencies in most of the forms of misconduct.

Breckinridge and Abbott (11), in a study of 584 delinquent boys, found 138 oldest, 70 youngest, 30 only children, and 346 occupying intermediate positions in families of three or more children. Reynolds (32), in a study of 400 habit clinic children, found also a disproportionately large percentage of oldest children. The findings of Thurstone and Jenkins (37, p. 120) agree with these results. "First-born children," they found, "occur with a disproportionate frequency among the children of completed families [by this the authors mean families of children between 18 and 21 years of age] examined at the Institute for Juvenile Research. This would indicate that an undue proportion of them are problem children."[4]

[4] In view of the difficulties apparently encountered by first-born children, comment should be made on another aspect of their characteristics. Although Thurstone and Jenkins [37, p. 120] found "definite evidence of a tendency for the intelligence quotients of siblings to increase progressively within sibships from the first-born to the later birth numbers at least as far as the eighth-born child," they present the findings of various investigators whose studies indicate that genius appears to occur among first-born children with disproportionate frequency.

Goodenough and Leahy's (21) study, analyzing the social behavior reactions of 293 children of 10 Minneapolis public-school kindergartens, is perhaps the study most comparable to the present study and is, therefore, reported here in considerable detail. The children were almost all from five and one-half to six years of age, mostly American-born and of better than average social status. Seventy-five per cent of them had an IQ of 100 or above. Graphic rating scales, on which each of 14 traits were represented by a separate line, with the extremes of behavior reactions at each end of the line, were filled out by the teachers. The traits included such characteristics as aggressiveness, self-confidence, suggestibility, demonstrativeness, gregariousness, social adequacy, attitude toward property, and a few other questions in regard to mood, emotional stability, and similar characteristics.

The 293 children were divided into four groups according to their place in the family (i.e., oldest, middle, youngest, and only child) and these groups were compared in regard to each trait.

In summarizing the findings, Goodenough and Leahy state:

> It has been shown that in the kindergarten group, those children who were the oldest in their families showed a significant tendency toward lack of aggressiveness, and that in at least one case out of every five, this lack of aggression was manifested to a rather extreme degree. These children are also rated low in self-confidence; they are lacking in qualities of leadership, are easily modified by suggestion, and very gullible. They are somewhat more likely to be seclusive, and their attention is likely to be of the introverted type.
>
> The middle child also shows some tendency toward lack of aggression, but this characteristic is far less marked than in the case of the oldest child. . . . . He [the middle child] is, as a rule, gregarious in his social attitudes, but individuals showing marked divergence toward the opposite extreme are also common among this group. Instances of extreme unpopularity with other children are more frequent in this group than in any other.
>
> The kindergarten children who are the youngest in their families show no really outstanding characteristic in their ratings. In total proportion of extreme ratings they rank the lowest of the four groups.
>
> The "only" children in the kindergarten group are rated as more aggressive and more self-confident than any of the other groups. They show the greatest proportion of cases of extreme fondness for physical demonstration of affection and are highly gregarious in their social interests [21, p. 69].

Considering the possible etiological factors that may account for the fact that the oldest children showed the greatest proportion of extreme deviations from the ideal norm, Goodenough and Leahy conclude:

> At least three possible factors suggest themselves: the comparative inexperience of the parents in the case of the first-born child, possible causative over strain as a result of the many small tasks, including care of the younger children, which often fall to the lot of the oldest child in a rapidly growing family, and more especially the difficult adjustment which is involved in the change from the "only child" to the "not only child" situation [21, p. 70].

In concluding, Goodenough and Leahy state that probably "it is not simply the only child who, by reason of the family relationships most frequently existent under those circumstances, is in danger of developing undesirable personality traits. There is probably no position in the family circle which does not involve, as a consequence of its own peculiar nature, certain special problems of adjustment. . . . . That under circumstances commonly prevailing, the oldest child in the family is likely to be subjected to conditions which render satisfactory adjustment particularly difficult is strongly indicated by the facts which have been presented herein" (21, p. 70).

The literature related to the question of social adjustment in children is reviewed by Charlotte Bühler in an interesting chapter entitled "The Social Behavior of the Child" (14). Some impression of the quantity of this literature may be gained from the fact that her list of references includes 173 titles.[5] Bühler classifies the facts which have been gathered by investigators in this field on the basis of two main aspects of the questions involved—(1) the *developmental*, and (2) *social types* and situations. She points out that the first gives a longitudinal view of the facts and of the successive stages in the general sequence of maturation; while the second gives us in cross-section the variety of types, the marked *individual differences*, found among children of any developmental level, in regard to social behavior and social situations. In re-

[5] A very suggestive review of studies in the social development of very young children will also be found in the Twenty-eighth *Yearbook of the National Society for the Study of Education* (29), chaps. v and xi.

viewing the literature, Bühler finds that the general development of social behavior has been studied with much more thoroughness and detail than has the second and more complicated topic—the types of social behavior which can be observed in different individuals and in different situations throughout infancy, childhood, and adolescence.

A still more inclusive review of the literature related to social behavior is presented by G. M. and L. B. Murphy in their volume *Experimental Social Psychology* (28). Even a cursory reading of that book makes obvious the futility of attempting to review the entire field of social studies when presenting an individual study such as the present one. Only studies which bear a fairly close relation to the one being presented can be included, if limitations of space are to be considered.

No attempt is made in this introduction to review all the literature on social behavior of children. Especially is this true of studies in which research workers have been experimenting with a number of observational devices for studying social behavior and have developed various methods of observing the social behavior of young children. Since publications reporting these are concerned primarily with types of methodology totally different from that used in the present study, they are not included here.

B. OBJECTIVES AND METHODS OF THE PRESENT STUDY

OBJECTIVES

Most of the investigations reported in the preceding introduction were experimental or observational studies, carried on under more or less controlled situations. The present study, however, is based on an analysis of case records from the Preschool Department of the Institute for Juvenile Research and has, therefore, the advantages and weaknesses of that type of research project, some of which have been briefly referred to in Part I and chapter v.

The only similar investigation which the author has been able to find in the literature is one reported in the study referred to earlier, by Goodenough and Leahy (21, p. 49), who discussed the tremendous difficulties encountered when they attempted statistical analysis of clinical case records. They considered their results inconclusive, because of the "complexity of the material and the consequent difficulty of interpretation and classification," and felt that an "even more serious source of difficulty lay in the extreme lack of homogeneity of the subjects studied." In the face of these inadequacies of their data, they considered it not surprising that few statistically reliable differences in the types of behavior characteristics of the several groups could be established, and felt that the amount of reliance which could safely be placed upon their findings was small.

In this present study, various efforts have been made to avoid the difficulties encountered by Goodenough and Leahy in their project. The chronological ages are more homogeneous, the range of intelligence quotients is smaller, and classifications of data, with careful differentiation between various degrees of "objectivity" and "subjectivity" of data, have been attempted.

In spite of the weaknesses that confront one in a research project based on case-record data,[6] there are important advantages

[6] There has been much oral and printed discussion of the relative values of the "case method" as compared with the statistical method for dealing with social data, but the notion that the two methods are in some way antagonistic or mutually exclusive is rapidly being dispelled. Most present-day workers and authors in the social sciences recognize not only that each of the two methods has its own respective values but also that the two are actually supplementary and, in the last analysis, essential to each other. The use of the statistical method is dependent upon the gathering of original data based on individual instances. The significance of case studies, on the other hand, is greatly enhanced scientifically when they are summarized and classified in order that the uniformities and differences, revealed by analysis of a large number of cases, may permit the grouping of factors so that general types and patterns appear. For this process, the statistical method is essential.

The complementary relationship of these two methods has already been discussed in a Behavior Research Fund Monograph: Luton Ackerson, *Children's Behavior Problems* (Behavior Research Fund Monographs, University of Chicago Press, 1931), Part I, chap. ii, p. 30. Illuminating and more detailed discussions of the case study method and the statistical method may also be found in the volumes by George A. Lundberg, *Social Research* (New York: Longmans, Green & Co., 1929), chap. viii, pp. 168–97, and Howard W. Odum and Katerine Jocher, *An Introduction to Social Research* (New York: Henry Holt & Co., 1929), chap. xv, pp. 229–43, and chap. xviii, pp. 284–304.

Recognition of the fact that the two methods are mutually interdependent, however, leaves a great number of problems still to be solved. Many confront the worker who strives to do quantitative research by applying methods of statistical analysis to

in that method when studying such a problem as that of social adjustment. The ultimate objective is to know how the individual child adjusts to life-situations, rather than how he reacts to some specified, controlled social situation over a very limited period of time. A definite report of how a child behaves under direct observation for a two-hour period in a nursery-school situation, for example, can at best be only a possible prediction of how he might be expected to behave in a somewhat similar, natural life-situation. If, however, one can obtain dependable and reliable accounts of a child's *characteristic* behavior in such a variety of social situations as to make up the daily life of the child, such a study has certain values of both a theoretical and practical nature, which

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case records that have been gathered in a service program, even though the records were assembled with ultimate research in view. Whether or not there is a fundamental contradiction inherent in the attempt to gather case records that will serve the combined purposes of *service* and *research* is a debated question. (Linton B. Swift, "Can the Sociologist and Social Worker Agree on the Contents of Case Records?" *Social Forces*, VI [1928], 535; also George A. Lundberg, *op. cit.*, p. 172.)

We shall not attempt to discuss this controversial point here. The fact that we are publishing this volume indicates that we do not believe there is a necessary incompatibility between the goals of service and the objectives of research. We admit frankly, however, that the question of whether satisfactory research can be superimposed on a service program has arisen repeatedly as we have struggled to analyze and classify the material gathered in our case records. The whole field of social science is lacking in well-defined, objective concepts and terminology. Sometimes it seems that data in this field have by their very nature an insoluble complexity; at least, objective means of measuring important variables have not yet been developed. Concepts and terms which are reasonably adequate for use in a treatment program are not sufficiently specific for research purposes. On the other hand, when they are so defined that they can be quantitatively treated, these concepts and terms often seem to have lost in the process those subtle differentiations which made them most meaningful as descriptions of human behavior. They become mere superficial categories for which the more profound implications appear to have been lost.

Furthermore, the fact which the "Integrationists" and the Gestalt psychologists have set forth in their statement that the whole is not merely the sum total of all its parts becomes very obvious to one engaged in research on case-record material. A trait, an attitude, an ability, or an act of an individual, when isolated from the rest of the personality of which it is a part, loses the significance which belonged to it as a part of the total setting. One is painfully aware of this as one selects from case records certain items, to subject them to statistical classification and analysis. This very realization, however, is an asset to the research worker. One who has known a child as a person and put thought and effort into the treatment of his difficulties is not likely to turn out that type of glib and superficial research against which Abraham Flexner protests so vigorously.

an experimental project under limited and controlled conditions does not have.

It seemed to members of the staff that such a study should be possible from the case records compiled by the Preschool Department, because problems of social adjustment were very common among the children brought to the attention of the Institute.

One of the fundamental difficulties which confronts any investigator in this field is the lack of adequate definitions of "problems of social adjustment." Until more is known about the "norms" of social behavior for children of various ages and conditions, it is difficult to define satisfactorily those behavior reactions which may legitimately be said to constitute *problems* of social adjustment. Working definitions, therefore, had to be arbitrarily established for this study and will be found in the section on "Method of Procedure." The study was limited to the child's relationship *to other children* (not his siblings), and does not include his relationships to adults.

The major objective of the study was:

1. To discover what relationships, if any, exist between the social behavior of the child from two to seven years of age, and various other data that have been recorded about the child and his environment. In order to determine whether certain items are factors affecting the social adjustment of a child, these possible factors as found in a group of socially "unadjusted" children were compared with similar data as found in a group of "well-adjusted" children and in an "unselected" group which served as a further control. (These groups are described in detail under "Method of Procedure.") The possible factors selected for study were:

1. Sex
2. Chronological age
3. Physical condition
4. Intelligence (according to test results)
5. Number of children in the family
6. Child's position among siblings
7. Child's relationship to siblings
8. National origin of father
9. Age of parents
10. Education of parents

11. Occupation of father
12. Family's financial dependence or independence
13. Type of living quarters and ratio of rooms to persons
14. Relationship of the father to the child
15. Agreement between parents in regard to child training
16. Marital relationship of parents
17. Child's previous opportunities for play with other children
18. Age at which child entered a nursery school or kindergarten
19. Other personality and behavior problems of the child

A minor objective of the study was:

2. To see whether or not the socially unadjusted children fall into rather natural groups as, for instance, the "ascendant,"[7] aggressive child on the one hand, and the "submissive," shy child on the other. Furthermore, to see whether these social-behavior "types" appear to differ in their relationships to the possible factors listed above. The reason for investigating this particular problem, the methods used, and the findings of this study relative to it will be found in section E.

SELECTION OF SUBJECTS AND METHOD OF PROCEDURE

From the 635 cases, described in a general way in Part I and of which a detailed analysis was presented in chapter v, the following three groups were selected:

Group A or "Problem Group" consisting of 100 cases of children who presented problems of social adjustment in their relationship to other children.

Group B or "Well-adjusted Group" consisting of 50 cases of children who were considered to be well adjusted to other children.

Group C or "Unselected Group" consisting of 100 unselected cases from the files of the Preschool Department.

Stated more specifically, the bases of selection for the three groups were the following:

Problem group (A).[8]—In the absence of any definite criteria as

[7] The terms "ascendant" and "submissive" are taken from Floyd and Gordon Allport (3 and 4).

[8] This "problem" group (Group A) was divided into three subgroups for the purpose of studying the "ascendant" and "submissive" personality types, referred to above as a second and minor objective of this study and discussed in section E. The statistical data for these subgroups are included in the twenty-four tables which present the major data of this study.

to what constitute "problems of social adjustment," for the purpose of this study a child was considered to present such problems when, in the opinion of more than one[9] adult in charge of him (parents, teachers, Infant Welfare workers, and members of the staff of the Institute), difficulties in entering into satisfactory relationships with other children were considered *characteristic* of the child over a period of several weeks, months, or years. A child who merely felt ill at ease during the first week or two of a new school or other new group experience, but then adjusted satisfactorily to other children, was not included in the problem group. "Difficulties in entering into satisfactory relationships with other children" included a variety of behavior reactions ranging from aggressiveness, pugnaciousness, and persistent unwillingness to share toys, to shyness, aloofness, and indifference toward other children.

Criteria of selection.—The statements on the basis of which children were classified within groups A and B are listed in the Appendix at the end of this study. They were obtained from various adults and are descriptions of the child's behavior in relation to other children. Decision in regard to the classification of these statements—that is, whether the behavior as described should be considered indicative of good or poor social adjustment—was an arbitrary matter. It is possible that opinions might differ in regard to some of them, but there would probably be very little disagreement about most of them. Furthermore, the objectivity of the investigator's judgments in classifying these data was checked by two other psychologists; the method used is described later. The table in the Appendix supplies a list of concrete descriptions (given by adults) of the specific social behavior reactions of children which may be said to constitute "good social adjustment" and those which constitute "problems of social adjustment."

[9] In about 10 per cent of the cases in this group there was only one informant regarding the child's social relationships, but in all these instances the reports were given by persons who had had plenty of opportunity to observe the child's relationships to other children. They were all, furthermore, individuals whose statements could be considered relatively dependable and whose descriptions of the child's social behavior were sufficiently specific to place the child unquestionably in the "problem" group.

Well-adjusted group (*B*).—For this group 50 cases of children were selected whose records contained definite statements clearly indicating that the child was considered socially well-adjusted to other children.[10] The mere absence of social-relationship problems was not considered sufficient as a basis of selection for this group, but the selection was based chiefly on positive statements, by those in charge of the child, indicating satisfactory relationships with other children. This does not mean that the children in this group always showed "perfect" behavior to other children, but that, in spite of occasional encroachments on the rights and feelings of others, a happy relationship and a feeling of ease existed characteristically between the child and his playmates. An example may be cited from a report of one child which read as follows: "Throughout the morning, children frequently said: 'Come, Peter,' and seemed eager to have him join in their play." Later the teacher reported: "When interfered with in play by other children, Peter becomes angry and will strike or threaten the offender. However, he is fond of other children and is socially adequate."

Unselected group (*C*).—A second control group of 100 cases, representing an unselected group, was compiled from the remaining case records of the Preschool Department (after groups A and B had been chosen). The cases for this group were chosen at random, the only selective factors being adequacy of the record and the desirability (discussed in one of the following paragraphs) of maintaining the same proportion of cases referred through each of the three nursery schools and through the clinic service, as in the problem group (Group A). The children in this group, therefore, represent a random sampling of children referred to the Preschool Department, whose social adjustment to other children was neither outstandingly good nor unusually poor. It also contained some children whose records, although adequate in other respects, did not contain information on social adjustment sufficiently specific to classify them either in Group A or Group B.

[10] There were not 100 cases among the 635 records available when this study was begun that could be unquestionably classified as definitely well adjusted.

ILLUSTRATIVE CASES

A socially unadjusted child.—The following describes the social behavior of a child who was included in Group A. This child presented a number of other personality and behavior problems, but only the problems of social adjustment, which were outstanding when she first became known to the Institute, are described here.

Elsie, when six years old, was referred to the Preschool Clinic of the Institute by the Infant Welfare Society of Chicago because of severe personality difficulties, especially those involved in her social adjustment to adults and to other children. She was the fifth child in a family of seven children. The father was a skilled workman who took special interest in Elsie. The mother was a healthy, capable, and friendly woman who was so completely occupied by the care of her children and her household that she had little time or patience to consider the less obvious needs of the children. The other children in the family did not present any difficulties.

Elsie's behavior was a constant problem in the family life. There were frequent moods of sullenness, when she refused to talk and would not even eat with the family; there were spells of severe temper and an obvious fear and distrust of all strangers who came to the house. She was very unpleasant to her sisters and brothers and refused to share her toys with them. She showed particular dislike and jealousy of the little brother, just younger than she. Elsie was reported (by her mother) to have shown her first "strange behavior" when this younger brother was born, and to have been "all right" prior to that. When the new baby came, Elsie sat on the steps in front of the house all day long and could not be induced to come inside the house. She refused to talk. This behavior lasted for a long time. "She was not the same child after that," according to the mother.

Elsie's most serious difficulty, as reported by the mother and observed by the Institute worker, was her extremely antisocial behavior toward other children. She would not mingle with other children in the neighborhood, and showed her dislike of them in very aggressive ways. When she was outdoors and children approached the sidewalk near her home, she would run up to them and chase them. She took their toys from them, and if they resisted would knock them down, pound them and say, "I don't want any kids on my sidewalk!" At other times when adults were near, her attitude would be less aggressive, but she would show her dislike of the children by such remarks as, "Get away"; "You're getting my dress dirty"; or "Shut up so that I can hear!" At the time she was referred to the Institute, she had no friendly contact whatever with other children. Naturally, the other youngsters of the neighborhood were very much afraid of her and, in general, would have nothing to do with her.

Elsie's jealousy of other children was quite apparent. On one occasion a social worker of the Institute took another child to see her, having planned a recreation trip for both of them. As soon as Elsie, who had been eagerly waiting at the window, saw that the worker had another child with her, she frowned and scowled. She left the window, went into her bedroom, and closed the door. She would have nothing to do with the worker on this particular occasion, although she had become very friendly and had even shown considerable attachment to her on the previous visit. On another occasion when the worker called for Elsie to take her to the park with a group of children, she refused to go. When, however, the worker took her on trips by herself she was very friendly and seemed happy and contented.

In general, Elsie's attitude toward adults was that of complete withdrawal. When strangers came to call on her mother she would run into her bedroom, close the door, and remain there until they had gone. On one occasion when some of her mother's friends stayed for four hours, Elsie remained in the bedroom for the entire time. She would not come out even to go to the toilet, but wet herself instead. Because of her peculiar behavior, the family and the neighbors sometimes considered Elsie "crazy" and they had frequently discussed this question in Elsie's presence.

A socially well-adjusted child.—The following describes the social behavior of a child who was included in Group B.

John, at the age of five years, was referred to the Preschool Clinic of the Institute by the Infant Welfare Society of Chicago because of a marked speech defect. Although he talked freely, his speech was very infantile and difficult to understand. He was the oldest of two children. The father was a skilled brick-layer, and both parents showed great interest in John and his sister.

In spite of John's speech handicap, he was a very well-adjusted child, socially, according both to his mother's report and the observations of the Institute worker. When at home, he spent most of his time outdoors playing with other children. He was quite a favorite in the neighborhood. The children did not seem to have difficulty in understanding his speech. On several occasions when the Institute worker visited the home, John was observed to be playing happily with a group of neighborhood children. Children came to his home to play with John. On such occasions he was generous in sharing his toys to entertain them.

In the course of the Institute's contact with John he was included on several recreation trips with other children who were also under treatment by the Preschool Clinic. On the first trip, he was rather quiet and had little to say to the other children. When it was suggested, however, that he take the responsibility of looking after a younger child, he did so very willingly and from then on "opened up" and carried on much conversation with this child and the others. He was always very glad to join these trips and would be ready long before it was time to start. When using the equipment in the playroom of the clinic, he was observed to take turns very willingly with the other children, and was thoughtful and considerate of them.

When the Institute worker visited the kindergarten which John attended, he was observed to enter into the activities very well and to make excellent social adjustments to the other children. In playing games he took an active interest and seemed to have a good sense of fair play. He "stood up" for his own rights but was willing to give in to another child if the situation warranted it. The teacher reported that he got on very well with the other children.[11]

SOURCES OF CASES

In selecting cases for groups A, B, and C from the total cases available, an effort was made to have the proportions of nursery-school and clinic cases equal for each of the three groups. This was considered important because the Institute's intake of nursery-school children was for the most part on a routine basis, whereas the clinic children were referred to the Institute because of definite problems. It was possible to accomplish this for groups A and C. Group B, however, contains a relatively higher number of cases referred by nursery schools than do groups A and C. This is due to the fact that it was not possible to get from the records a proportion of nursery-school and clinic cases that would be the same for Group B as for the other groups. An analysis of the sources of cases for all three groups will be found in Table XI.

DEPENDABILITY AND RELIABILITY OF DATA

As indicated earlier, this is a study based on case-record material, rather than on data gathered under controlled observations. The only criteria by which a child is classified in Group A

[11] The intelligence levels of these two children, as measured by tests, furnish rather interesting illustrations of the findings presented later in this study. According to Merrill-Palmer and Stanford-Binet tests given her at the Institute, Elsie was mentally retarded. The Stanford-Binet IQ was only 70, but this was questioned by the psychologist because Elsie's extreme distractibility and poor co-operation may have tended to reduce her IQ below what would otherwise have been her possible level of achievement.

John's IQ was 97 in a first Stanford-Binet, and 104 in a later one; this was especially interesting in view of his speech problem, since the Stanford-Binet test requires considerable language ability.

or Group B are, admittedly, the opinions of certain adults who gave reports about the child's personality and behavior. In such a

TABLE XI*

SOURCES OF CASES

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Winnetka Nursery School	12	5 a 4 s 3 u	20	12
Franklin Nursery School	15	2 a 9 s 4 u	26	15
Mary Crane and Garden Nursery schools†	12	5 a 5 s 2 u	14	12
Clinic	55	24 a 16 s 15 u	34	55
Special cases‡	4	0 a 2 s 2 u	6	4
Control group of another study	2	2 a 0 s 0 u	0	2
Total	100	38 a 36 s 26 u	100	100

* In this and most of the following tables, for the sake of simplification, only percentages are given since groups A and C consist of 100 cases. The number of cases in Group B can easily be determined for each item by dividing the percentages by two, since Group B contains 50 cases.

In regard to certain specific items, exceptions to this procedure have been made whenever there were large percentages of cases having "no information," which were unequal for the three groups. In such instances only those cases were included in the table on which there was some information about the items studied. The number of cases and percentages are then given, since the total number of cases is below 100 for all groups.

Throughout the tables under the heading of "subgroups" in column A, small letter "a" stands for "ascendant," "s" for "submissive" and "u" for "unclassified," according to the subgroups described in section E.

† There were only two children of the Garden Apartments Nursery School included in Group A and none in the other groups.

‡ These were children referred to the Institute only for advice in regard to school placement.

study, where there is this large subjective element, it becomes exceedingly important to inquire into the dependability and reliability of the data. Who were the adults whose opinions about the child were accepted? How dependable and reliable were their judgments? Was the opinion of one informant accepted, or was it checked by the opinions of others? Were there a number of reports on each child, and did they cover a sufficient period of time to warrant the assumption that the behavior described was characteristic of the child? Would other investigators, working independently, classify the cases of this study in the same way as did the present investigator?

The answers to such inquiries as the above constitute the only available means of establishing the dependability and reliability of such data as form the basis for this study. It is questionable whether the term "reliability" in its technical meaning can really be applied to data as subjective and uncontrolled as these, but the term is used here in its general meaning—that there is agreement between two or more opinions in regard to the data.

Cases in which the informants contradicted each other in their statements about the child's social relationships were excluded from this study. Exceptions were made in a few cases where the specificity of the statements of several informants outweighed a rather vague statement by one other informant.

The following methods were used to establish this reliability and dependability of the data in regard to the child's relationships to other children:

1. *Informants.*—The *number* of different informants who reported on the child's relationships to other children ranged in Group A, the problem group, from 1 to 8 per child; 87 per cent of the cases had statements of more than one informant about the child's social relationships; and in 62 per cent of the cases there were three or more informants. In Group B, the well-adjusted group, the number of different informants who reported on the child's relationships to other children ranged from 1 to 4; 90 per cent of the cases had reports by more than one informant; 52 per cent had statements by three or more informants.

Turning to the question of *who were the informants*, one finds that the reports in regard to the child's relationships to other children were obtained from the sources given in Table XI A.

As is shown by this list of informants, a very large proportion of reports were obtained either from teachers or from members of the staff of the Institute. More objective and dependable statements might be expected from such professional workers than would be likely to be obtained from untrained persons.

2. *The number of separate reports* from one or more informants contained in the record in regard to the child's relationship to other children ranged from 1 to 40 in Group A, the problem group. Ninety-three per cent of the cases had more than one report; 77

TABLE XI A

SOURCES OF INFORMATION

INFORMANTS*	No. of Cases	
	A Problem Group (100 Cases)	B Well-adjusted Group (50 Cases)
Parents	78	39
Teachers	75	45
Staff members of Institute	70	33
Workers of other agencies	19	1
Child's own statement	2	0
Others	13	2

* An informant was only counted once for each case, even though he gave several reports.

per cent of the cases had three or more reports about the child's social relationships. In Group B, the well-adjusted group, the number of reports ranged from 1 to 10; 98 per cent of the cases had more than one report; 86 per cent of the cases had three or more reports on the child's social relationship.

3. *The length of time covered by reports on the child's social adjustment* ranged from 2 months to 3 years. In 64 per cent of the cases of Group A the reports cover more than 6 months. In 45 per cent of the cases the reports cover more than 1 year. In Group B the range is practically the same as in Group A. In 72 per cent of the cases the reports cover more than 6 months and in 54 per cent of the cases they cover a period of more than a year.

4. *Reliability of the basis of selection of cases for Group A (problem group) and Group B (well-adjusted group).*—After all the statements each record contained in regard to the child's relationships to other children had been copied off on individual sheets and classified by the investigator, two psychologists (not working on these data) were asked to go over a sampling of 50 such abstracts of cases. These sheets represented an even mixture of cases previously selected by the investigator for groups A and B, but did not bear any marks of identification as to the group for which they had been selected. The two psychologists were asked to decide, independently, into which of the two groups each case should go, basing their selection upon the definitions (including illustrations) that had been established for the groups. This method of checking for the objectivity of the investigators' judgments in classifying cases into "well-adjusted" and "problem" cases was used because of the difficulty, discussed earlier, of establishing definite and specific criteria for *social adjustment.* It seemed important to be reasonably sure that other investigators, working independently, would classify the cases in the same way.

In 86 per cent of the cases there was complete agreement between the two psychologists and the investigator as to the group into which the cases logically belonged. Following this test the most questionable cases were excluded from the groups. The two raters then went over another sampling of 50 cases. This time rater No. 1 agreed in 100 per cent of the cases with the investigator, and rater No. 2 agreed in 94 per cent, as to the group into which the cases belonged according to the definitions.

The foregoing review of the dependability and reliability of the criteria on the basis of which children were classified into groups A and B would seem to justify the assumption that Group A does consist of children who present "problems of social adjustment in their relationships to other children," and that Group B is composed of children who enter into social relationships with other children with relative ease.

Data on other items studied.—No attempt was made in this study to establish the dependability and reliability of data regarding items other than those of the child's relationships to other chil-

dren. Other data were simply accepted as found in the records. In a study based on case records, however, differentiations should be made between data in regard to their relative degree of dependability and reliability. The following are suggested as four possible levels into which such data might be divided:

1. Factual data which can be considered fairly dependable (such as chronological age of the child, number of children in the family, sex, civil status, number of rooms to persons in the household, etc.).

2. Data established through the use of fairly well-standardized instruments of measurement (such as psychological tests).

3. Data for which in this study there were no standardized instruments of measurement nor adequate norms, such as those gathered through examination of the children's physical condition by a number of different physicians working independently.

4. Data that must frankly be admitted as relatively subjective in character and for which it would be very difficult, if not impossible, to establish reliability. Examples of such factors are found in the following: the relationship of a child to his siblings, the attitude of the father toward the child, marital relationships of parents, and the reported personality and behavior problems of a child.

If this study had been limited to the first two types of data listed above, important factors in relation to the child's social adjustment might have been excluded. It was, therefore, decided to include a number of possible factors which would classify under the last two types, such as those in regard to the child's physical condition, his environment, and his family relationships, fully recognizing the fact that such data do not represent the same degree of dependability as do factual data.

C. FINDINGS

The relation of the child's social behavior to certain other recorded facts about the child and his environment, which are listed under "objectives" earlier in this study, are presented in Tables XII through XXXIII.

SEX[11a]

Table XII shows the distribution of cases in the three groups according to sex. Groups A and C are about equal as to sex; Group B, the well-adjusted group, has a slightly higher percentage (6 more cases) of boys than girls. Since it so happens that the study as a whole includes 129 boys and 121 girls, the slight predominance of boys over girls in Group B may be merely the result of the inequality of their number in the study itself.

TABLE XII

DISTRIBUTION OF CASES IN THE THREE GROUPS BY SEX

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Sub-groups	Per Cent	Per Cent
Boys (total 129)	49	22 a 13 s 14 u	56	52
Girls (total 121)	51	16 a 23 s 12 u	44	48
Total	100	38 a 36 s 26 u	100	100

CHRONOLOGICAL AGE

Table XIII shows the distribution of the cases in the three groups by chronological age—i.e., age at the time of the first report used in this study in regard to the child's social relationships.

The mean chronological age of Group A is higher than that of

[11a] Data for chronological age (Table XIII) and data in regard to siblings (Tables XVII through XXI) were analyzed separately for boys and girls. The numbers of cases in the various groups so divided became so small as to be insignificant and failed to reveal marked differences between the sexes. Therefore, the data in this study are not subdivided into sex groups, except in Table XII.

TABLE XIII

DISTRIBUTION OF THE CASES IN THE THREE GROUPS BY AGE
(Age at time of first report in regard to child's social relationships)

Age in Months	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Below 24	0	.....	2	1
24–29	7	0 a, 3 s, 4 u	18	19
30–35	17	6 a, 7 s, 4 u	16	16
36–41	14	6 a, 6 s, 2 u	12	16
42–47	18	8 a, 6 s, 4 u	18	13
48–53	10	4 a, 3 s, 3 u	8	11
54–59	18	6 a, 7 s, 5 u	6	8
60–65	5	3 a, 1 s, 1 u	12	8
66–71	3	0 a, 0 s, 3 u	8	4
72–77	4	4 a, 0 s, 0 u	0	1
79–83	3	0 a, 3 s, 0 u	0	3

TABLE XIII—*Continued*

Age in Months	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
84–89	1	1 a, 0 s, 0 u	0	0
Total	100	38 a, 36 s, 26 u	100	100
Mean age and *P.E.*	47.2±0.9	49.5 a, 45.8 s, 45.7 u	43.5±1.3	42.8±1.0
S.D.	13 9	.....	14.1	14.3

	A and B	A and C	B and C
Difference between means	3.7	4.4	0.7
P.E. of difference	1.6	1.3	1.7
Significance quotient	2.2	3.2	0.4

either Group B or Group C. In order to determine whether, with these numbers, the difference might be due to chance,[12] the probable error of the difference between the means was computed by the usual formula:

$$P.E._{m_1 m_2} = 1\sqrt{(P.E._{M_1})^2 + (P.E._{M_2})^2}\,.$$

[12] As in the preceding study, a difference is considered significant if it is at least *three times its probable error*.

The term "significance quotients" is used in tables to denote the ratio of the difference between the means to the *P.E.* of that difference, $\left(\frac{m_1 - m_2}{P.E._{m_1 - m_2}}\right)$. By some writers this is called the "critical ratio" (C.R.).

Probable errors and significance quotients were not computed when the differences between the groups were obviously very slight, when the number of cases with available data were very small for the items tabulated, when the original data were considered very questionable as to dependability, or when only Group C appeared to differ from the other two groups.

The "significance quotients" indicate that the difference between the means of Group A and Group C may be considered significant, but that the differences between groups A and B, and B and C may not. Difference in chronological age cannot, therefore, according to our data and within the limitations of the groups studied, be considered a significant factor in relation to the social adjustment of young children. These figures do indicate, however, that the children in Group A, the "problem" group, are somewhat older than the children in the other groups.

GENERAL PHYSICAL CONDITION

Table XIV shows a comparison of the three groups in regard to the physical condition of the children. The data are based on reports made out and sent to the Institute by the physicians who, through the Infant Welfare Society or in private practice, had examined the children. These various physicians, who were interested in the children from the standpoint of health rather than research, did not, of course, use any uniform standard of measurement in making out these reports. Thus, a report of one physician was comparable with that of another physician only in a very general way.

To make these reports more comparable, one physician, a member of the Institute's staff, went over all the reports on physical examinations of the children in this study and classified them into five groups—"good," "good or fair," "fair," "fair or poor," and "poor" general physical condition. This classification was based on statements made in regard to general development, nutrition, and various physical defects, such as inflamed tonsils, heart murmurs, and the like. Although it is quite possible that other physicians might disagree as to what constitutes good, fair, or poor general condition, for the purposes of this study the reports on various children are made fairly comparable in that they have all been classified by one physician, who used a uniform standard for the cases in all three groups.

No outstanding differences between the three groups are apparent in regard to general physical condition, but the data indicate a consistent tendency for the children in Group A, the problem group, to be in less good physical condition than the other two groups. The differences, however, are small. The findings, therefore, indicate only a slight relationship, if any, between the child's social adjustment and his general physical condition.

TABLE XIV

DISTRIBUTION OF CASES IN THE THREE GROUPS BY GENERAL PHYSICAL CONDITION

General Physical Condition	A Problem Group (100 Cases)		B Well-adjusted (50 Cases)	C Unselected (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Good	32	8 a, 10 s, 14 u	36	39
Good or fair	3	2 a, 0 s, 1 u	8	8
Fair	37	18 a, 12 s, 7 u	40	40
Fair or poor	7	2 a, 3 s, 2 u	4	0
Poor	11	4 a, 6 s, 1 u	8	8
Insufficient information	10	4 a, 5 s, 1 u	4	5
Total	100	38 a, 36 s, 26 u	100	100

INTELLIGENCE

A comparison of the three groups in regard to intelligence was made on the basis of test results for both the Stanford-Binet and Merrill-Palmer scales. The first test of its kind that was given the child at the Institute was the one used, unless the results of that

test were questioned because of lack of co-operation on the part of the child or because of outside disturbances. Thus, in fourteen cases in Group A, four cases in Group B, and eight cases in Group C, the Stanford-Binet test counted in this study was not the first one the child had been given. The same was true for the Merrill-Palmer test in two cases for Group A and three for Group B. If a child had never had a test, the results of which were considered dependable, that case was not included in this section of the study. Because of their different chronological age levels, only about 60–80 per cent of the children in each group were given each test. The younger ones were usually tested by the Merrill-Palmer Scale, the older ones by the Stanford-Revision of the Binet-Simon Scale, and many children by both.

STANFORD-BINET SCALE

Table XV shows a comparison of the Intelligence Quotients of the children in the three groups according to the Stanford-Binet Scale.

The IQ's of the children in Group A ranged from 63 to 156; in Group B they ranged from 86 to 163; and in Group C from 70 to 148. The mean IQ for Group A is 106.9±1.5 with a standard deviation of 18.3. In Group B the mean IQ is 120.3±1.9 with a standard deviation of 18.2, and in Group C the mean IQ is 109.6 ±1.5 with a standard deviation of 17.7.

Thus, according to the mean IQ's on the Stanford-Binet Scale, the children in Group B, the well-adjusted group, scored considerably higher than either the children in Group A, the problem group, or Group C, the unselected group. Group C rated slightly higher than Group A.

That the considerable difference between the mean IQ's of groups A and B is not merely due to the fact that there were three children with IQ's below 70 in Group A and none in the other groups, is evident from the consistency with which the children in Group B scored higher than the children in Group A, shown in Table XV.

In order to determine whether, with the number of cases included, the differences are not likely to be due to chance, the statistical procedure based on the probable error of the difference

TABLE XV

DISTRIBUTION OF CASES IN THE THREE GROUPS ON IQ'S ON THE STANFORD-BINET SCALE

IQ's	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Subgroups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
Below 70	3	1 a, 1 s, 1 u	5	0	0	2	3
70–89	9	2 a, 4 s, 3 u	14	1	2	8	12
90–109	28	12 a, 9 s, 7 u	42	12	30	25	37
110–129	18	7 a, 5 s, 6 u	27	15	37	25	37
130–149	7	1 a, 3 s, 3 u	11	11	27	9	14
150–169	1	0 a, 1 s, 0 u	1	2	5	0	0
Total	66	23 a, 23 s, 20 u	100	41	100	67	100
Mean IQ and *P.E.*	106.9±1.5	107.0 a, 107.6 s, 106.6 u	....	120.3±1.9		109.6±1.5	
Standard deviation	18.3	.....	....	18.2		17.7	
	A and B			A and C		B and C	
Difference between means	−13.4			−2.7		10.7	
P.E. of difference	2.5			2.1		2.4	
Significance quotient	5.5			1.3		4.4	

between means was again employed. As shown in Table XV, the differences between the well-adjusted group and the other two groups appear to be significant differences not merely due to chance fluctuations. The difference between the means of groups A and C is, however, too small to be considered significant.

MERRILL-PALMER SCALE

Table XVI shows the distribution of cases in the three groups according to the Merrill-Palmer Scale, the scores in terms of standard deviation being used as a means of comparison.

The scores in Group A range from -2.8σ to $+3.3\sigma$ with a mean of $-.14\sigma \pm .1$ and a standard deviation of 1.2. In Group B the scores range from $-.9$ to $+3.1$ with a mean of $+.37\sigma \pm .1$ and a standard deviation of .9. The range in Group C is from -3.5σ to $+1.7\sigma$ with a mean of $-.07\sigma \pm .1$ and a standard deviation of .9. These findings are in agreement with the findings of the Stanford-Binet Scale and indicate again that the children in Group B scored considerably higher than the children in either groups A or C. As in the Stanford-Binet tests, the children in Group A scored lowest but the difference when compared with Group C is small.

By the same method used for the Stanford-Binet results, the probable errors of the differences between the means were determined. It was found that the difference between the means of groups A and B, and between groups B and C, can be considered statistically significant, while the difference between groups A and C is not significant. For the groups included in this study, test-intelligence appears to be significantly higher in well-adjusted children than in socially unadjusted or unselected cases.

SIBLINGS

In view of the divergent results found by various investigators who have studied the influence of sibling-relationships on the development of personality and on behavior, it seemed of special interest to study these factors in regard to the social adjustment of children of preschool age. Furthermore, since in most cases, with the exception of "only child" situations, a child's first social contacts with other children are made through his brothers and sis-

ters, it seems possible that his later reactions to children in school and neighborhood are to a great extent colored by these relation-

TABLE XVI

DISTRIBUTION OF CASES IN THE THREE GROUPS BY RESULTS ON THE MERRILL-PALMER SCALE

Scores in Terms of Standard Deviation	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Subgroups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
-1.8σ and below	5	1 a, 3 s, 1 u	8	0	0	4	5
$-.8\sigma$ to -1.7σ	15	5 a, 4 s, 6 u	24	2	6	11	15
$-.7\sigma$ to $+.7\sigma$	29	13 a, 11 s, 5 u	46	24	70	48	66
$+.8\sigma$ to $+1.7\sigma$	12	4 a, 5 s, 3 u	19	5	15	10	14
$+1.8\sigma$ and beyond	2	0 a, 1 s, 1 u	3	3	9	0	0
Total	63	23 a, 24 s, 16 u	100	34	100	73	100
Mean score in terms of *S.D.*	$-.14\sigma \pm .1$	$-.11$ a, $-.08$ s, $-.27$ u	.....	$+.37\sigma \pm .1$		$-.07\sigma \pm .1$	
Standard deviation	1.2	.....	.....	.9		.9	

	A–B	A–C	B–C
Difference between means	$-.51$	$-.07$	.44
P.E. of difference	.14	.12	.12
Significance quotient	3.6	0.5	3.5

ships to his own siblings. With these questions in mind, the following tables in regard to the number of children in the family, the

TABLE XVII

DISTRIBUTION OF CASES IN THE THREE GROUPS BY NUMBER OF CHILDREN IN THE FAMILY

No. of Children in Family	A Problem Group (100 Cases)		B Well-Adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
1	17	4 a, 6 s, 7 u	20	22
2	41	19 a, 17 s, 5 u	42	26
3	24	10 a, 5 s, 9 u	22	24
4	5	3 a, 1 s, 1 u	10	18
5	3	1 a, 2 s, 0 u	4	[illegible]
6	6	1 a, 4 s, 1 u	0	3
7	2	0 a, 0 s, 2 u	2	0
8	1	0 a, 1 s, 0 u	0	1
9	1	0 a, 0 s, 1 u	0	0
Total	100	38 a, 36 s, 26 u	100	100
Mean number of children in family	2.7	2.5 a, 2.8 s, 3.0 u	2.4	2.7

child's place in the family, and his relationships to his siblings are presented.

NUMBER OF CHILDREN IN FAMILY

Table XVII compares the three groups in regard to the number of children in the family. (Siblings who died before or within half a year after the child was born, or siblings who had lived away from home most of their lives, were not included, but step-siblings and adopted siblings living with the family were included.) Since the subjects of this study are only of preschool age, it is probable that many of their families are still "incomplete." That fact is not important in a study such as this one, however, since it is the family situation as it exists when the child's social behavior is studied, which is of interest.

This table shows not only that the proportion of "only" children in the three groups is about equal, but also that the mean number of children in the family is about equal in all three groups. As a matter of fact, the smallest number of "only" children is in Group A, the problem group, and in Group B, the well-adjusted group, the average number of children in the family is smaller by a fraction than in the two other groups. The differences are so very slight, however, that the three groups may be said to be about equal as regards these factors.

These figures indicate that there is no larger proportion of "only" children in the group of socially unadjusted children than in the group of socially well-adjusted or the group of unselected children of the same age.

POSITION OF THE CHILD IN THE FAMILY

Data on this question are presented in Tables XVIII, XIX, and XX. One finds that Group A, the problem group, has the largest number of youngest children as compared with the other two groups. This is particularly apparent in Table XX where children in the three groups coming from two-child families are compared.

In order to determine whether these differences might, with the number of cases included, be due to chance, *the probable errors of the difference between the percentages* of the groups were computed by the same formula which was used in the preceding study:

$$P.E.\ \text{diff.} = \sqrt{P.E._{P_1}^2 + P.E._{P_2}^2}$$

The findings indicate that, for the number of cases studied, the differences between the groups are not great enough to be statistically significant. (A difference between percentages was at best

TABLE XVIII

DISTRIBUTION OF CASES IN THE THREE GROUPS ACCORDING TO THE PLACE OF THE CHILD IN THE FAMILY

THE CHILD STUDIED IS THE:	A PROBLEM GROUP (100 CASES)		B WELL-ADJUSTED GROUP (50 CASES)	C UNSELECTED GROUP (100 CASES)
	Per Cent	Subgroups	Per Cent	Per Cent
Only child	17	4 a, 6 s, 7 u	20	22
Oldest child	29	12 a, 12 s, 5 u	24	19
Second child	23	12 a, 6 s, 5 u	34	27
Third child	19	9 a, 5 s, 5 u	12	13
Fourth child	3	1 a, 2 s, 0 u	4	15
Fifth child	4	0 a, 2 s, 2 u	6	2
Sixth child	3	0 a, 3 s, 0 u	0	1
Seventh child	2	0 a, 0 s, 2 u	0	0
Eighth child	0	.....	0	1
Total	100	38 a, 36 s, 26 u	100	100

only twice its probable error.) For this reason the probable errors are not included in the tables.

The trends indicated above, however, are in agreement with the findings of Thurstone and Jenkins (37), Breckinridge and Abbott (11), Reynolds (32), and others who found a disproportionately

TABLE XIX

DISTRIBUTION OF CASES IN THE THREE GROUPS BY ONLY, OLDEST, MIDDLE,* AND YOUNGEST CHILDREN

THE CHILD STUDIED IS:	A PROBLEM GROUP (100 CASES)		B WELL-ADJUSTED GROUP (50 CASES)	C UNSELECTED GROUP (100 CASES)
	Per Cent	Subgroups	Per Cent	Per Cent
The only child	17	4 a, 6 s, 7 u	20	22
The oldest child	29	12 a, 12 s, 5 u	24	19
A middle child	21	8 a, 5 s, 8 u	16	25
The youngest child	33	14 a, 13 s, 6 u	40	34
Total	100	38 a, 36 s, 26 u	100	100

* A "middle" child is a child occupying any intermediate position in a family of three or more children.

large number of oldest children among delinquent or "problem" children. Table XX indicates a trend in agreement with the findings of Goodenough and Leahy (21) discussed earlier, who found that oldest children ranked highest and youngest children ranked lowest in total proportion of "extreme ratings." (Their "extreme ratings," on either side of the scale from the ideal norm, represent various forms of difficulties in adjustment.)

Tables XVIII, XIX, and XX show no differences between the groups in regard to "only" children or to the size of the family, but they indicate a trend (although not a "significant" one) toward greater frequency of oldest children in the problem group and greater frequency of youngest children in the well-adjusted group; the unselected group shows no consistent trend.

TABLE XX

COMPARISON OF THE CHILDREN IN THE THREE GROUPS COMING FROM FAMILIES OF TWO CHILDREN

The Child in This Study Is The:	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Sub-groups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
Older child	26	11 a 11 s 4 u	63	9	43	14	54
Younger child	15	8 a 6 s 1 u	37	12	57	12	46
Total	41	19 a 17 s 5 u	100	21	100	26	100

CHILD'S RELATIONSHIP TO SIBLINGS

The question naturally arises as to why the older children of a family appear to be socially unadjusted more frequently than do the younger children. Table XXI, comparing the three groups in regard to the child's relationship to his older and younger siblings, is presented here because it may throw some light on this question.

Anyone attempting to study the relationships between a child and his brothers and sisters encounters many obstacles. It is extremely difficult to obtain data on this question through the actual observations of trained workers and one has to rely almost entirely on the statements of parents, which are often highly subjective. The records used for this study revealed that in many instances

mothers made very definite statements indicating that the child was very fond of all his brothers and sisters, and that a happy relationship existed between them, or, as the case may be, that the child showed a decided dislike for a sibling. Despite the definiteness of these statements, data such as these must obviously be considered as less dependable than other more factual information such as the number of children in the family. Cases in which the information on these particular factors was vague or seemed questionable were omitted from this analysis. Thus, a rather small residue of cases was available for analysis.

It must be remembered that throughout this study an attempt was made to get a description of the child's behavior that was *characteristic* of his reactions. For example, the items "does not get on well" and "jealousy" imply a rather severe and persistent degree of dislike on the part of the child, and the items "get on well" include children who are fond of each other in spite of occasional quarrels. In any of the items describing dislike of a sibling, the dislike may be directed against one or several siblings.

Because of the very small number of cases with available data in regard to the child's relationships to his siblings, the findings cannot be given very serious consideration. One interesting trend, however, should be noted—the very large proportion of children in the problem group who show jealousy in relation to their younger sibling or siblings. Among the 50 children (one-half) in Group A who have younger siblings, 23 of the 36 children for whom data are available show definite jealousy reactions toward these younger siblings. The groups are hardly comparable on this point, since in Group B, the well-adjusted group, there were only 10 (out of 50) who had younger siblings, but among those 10 only one was reported to have ever shown any jealousy reactions toward his younger sibling. Of the 26 children in Group C, the unselected group, who have younger siblings, one half show jealousy of them. It seems quite possible that the greater frequency of jealousy in the problem group is related to the fact that there are more "older" children of two-children families in that group than in the others (see Table XX). These trends suggest the possibility that children who are "dethroned" by the arrival of a younger

TABLE XXI

COMPARISON OF THE THREE GROUPS IN REGARD TO THE RELATIONSHIP BETWEEN THE CHILD AND HIS SIBLINGS*

	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Sub-groups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
Child and older sibling(s) "Get on well"	12	4 a, 3 s, 5 u	44	6	50	18	69
"Do not get on well"	15	8 a, 4 s, 3 u	56	6	50	8	31
Child has no older sibling	46	16 a, 18 s, 12 u	.....	22	.....	41	.....
Insufficient information	27	10 a, 11 s, 6 u	.....	16	.....	33	.....
Total	100	38 a, 36 s, 26 u	100	50	100	100	100
Child and younger sibling(s) "Get on well"	12	2 a, 6 s, 4 u	33	8	80	11	42
"Do not get on well"	1	1 a, 0 s, 0 u	3	1	10	2	8
"Child showed jealousy earlier but not now"	2	0 a, 1 s, 1 u	6	0	0	7	27
"Child's jealousy reactions still persist"†	21	12 a, 4 s, 5 u	58	1	10	6	23
Child has no younger sibling	50	18 a, 19 s, 13 u	.....	30	.....	55	.....
Insufficient information	14	5 a, 6 s, 3 u	.....	10	.....	19	.....
Total	100	38 a, 36 s, 26 u	100	50	100	100	100

* In this table percentage is based on the total number of children who *had* older or younger siblings and on whom the record contained information about their relationships.

† The item "Child's jealousy reactions still persist" includes one case of a child who completely ignored her younger brother. When she was asked about him, she answered: "I have no little brother."

sibling not only tend to be jealous of that younger one but are also likely to express this maladjustment by a failure to adjust well in their social contacts with other children.

PARENTS

NATIONAL ORIGIN OF FATHERS

Table XXII shows the distribution of the cases in the three groups by national origin of the father. This table indicates no outstanding differences among the groups. On the whole, the various nationalities are fairly evenly distributed in the three groups (except that Group B has a larger percentage of cases where the father is of Italian antecedents than do the other groups). The national origin of the mother was, on the whole, very similar to that of the father. For this reason it is not given in Table XXII.

The majority of children in all three groups were white. There were only 16 Negro children among all the cases of the study (7 in Group A, 1 in Group B, and 8 in Group C). In addition, there were 2 children of mixed races (white and Filipino) in group B.

AGES OF FATHERS AND MOTHERS

Table XXIII compares the three groups according to the ages of fathers and mothers at the time the child was referred to the Institute. This table does not show any marked differences between the groups. The parents in Group A tend to be slightly older than those of the other groups.

EDUCATION OF FATHERS AND MOTHERS

The distribution of the cases in the three groups by education of fathers and mothers is given in Table XXIV. Data in regard to this factor were very incomplete, but for those cases in which data are available there are no marked differences shown among the three groups.

OCCUPATIONS OF FATHERS

Table XXV gives a comparison of the three groups in regard to occupations of fathers. The findings of this table indicate that the three groups are fairly equal as regards most of the occupational groups. One significant exception is found, however, in that Group

TABLE XXII

Distribution of Cases in the Three Groups by National Origin of Fathers

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
American (U.S.)	31	11 a 10 s 10 u	25	32
British (British Isles)	9	3 a 4 s 2 u	11	10
German	9	3 a 4 s 2 u	9	9
Italian	7	2 a 3 s 2 u	17	10
Russian	5	3 a 0 s 2 u	3	10
Polish	3	1 a 1 s 1 u	3	0
Austrian and Hungarian	3	0 a 1 s 2 u	0	5
Mexican	4	3 a 1 s 0 u	0	3
French	1	1 a 0 s 0 u	1	0
Scandinavian	2	0 a 2 s 0 u	2	1
Miscellaneous	6	2 a 3 s 1 u	7	4
No information	20	9 s 6 a 5 u	22	16
Total	100	38 a 35 s 27 u	100	100

TABLE XXIII

Distribution of Cases in the Three Groups by Age of Fathers and of Mothers

Age (in Years)	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Father:				
20–29	9	4 a 5 s 0 u	24	13
30–39	51	19 a 19 s 13 u	46	42
40–49	26	11 a 9 s 6 u	22	21
50–59	5	1 a 0 s 4 u	2	5
60–69	0	.....	0	1
No information	9	3 a 3 s 3 u	6	18
Total	100	38 a 36 s 26 u	100	100
Mother:				
20–29	28	13 a 13 s 2 u	38	30
30–39	48	17 a 15 s 16 u	52	42
40–49	15	6 a 4 s 5 u	8	12
No information	9	1 a 4 s 3 u	2	16
Total	100	38 a 36 s 26 u	100	100

TABLE XXIV

DISTRIBUTION OF CASES IN THE THREE GROUPS BY EDUCATION OF FATHERS AND MOTHERS

	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Sub-groups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
Father							
No school	4	2 a 1 s 1 u	10	2	6	7	16
Grammar	8	4 a 3 s 1 u	19	12	34	14	32
High	11	6 a 4 s 1 u	27	7	20	6	14
College	18	8 a 6 s 4 u	44	14	40	17	38
Total	41	20 a 14 s 7 u	100	35	100	44	100
Mother							
No school	3	1 a 2 s 0 u	6	1	3	2	3
Grammar	12	8 a 3 s 1 u	26	11	34	22	39
High	8	3 a 4 s 1 u	17	7	22	14	25
College	23	8 a 9 s 6 u	49	12	38	19	33
Art or other schools	1	1 a 0 s 0 u	2	1	3	0	0
Total	47	21 a 18 s 8 u	100	32	100	57	100

B, the well-adjusted group, has a larger proportion of fathers occupying a professional or executive business position than do the other groups. The difference between the percentages of A and B

TABLE XXV

DISTRIBUTION OF CASES IN THE THREE GROUPS BY OCCUPATIONS OF FATHERS*

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Professional, business executives, etc.	15	6 a 6 s 3 u	32	11
Commercial and clerical service, etc.	12	4 a 4 s 4 u	6	13
Skilled owners and operators of small shops	11	3 a 4 s 4 u	12	14
Skilled laborers	32	12 a 12 s 8 u	30	35
Unskilled laborers	16	9 a 6 s 1 u	14	16
Not able to work	0	.....	0	3
Insufficient information	14	4 a 4 s 6 u	6	8
Total	100	38 a 36 s 26 u	100	100

* The classifications used are those of the Sims Scale (34).

with its probable error, is 17 ± 5.1 per cent; that between B and C is 21 ± 4.9 per cent. Since these differences are more than three times their probable errors, they may be considered significant differences. The difference between A and C, with its probable error, is 4 ± 3.2, which is not significant.

FAMILY'S FINANCIAL DEPENDENCE AND LIVING QUARTERS

Table XXVI shows a comparison of the three groups according to the family's financial dependence on social agencies, the living quarters of the family, and the ratio of rooms to persons. (A "flat," in this study, has a rental less than fifty dollars per month; an "apartment" has a rental which exceeds fifty dollars per month.)

The classifications (5 groupings) under "Ratio of rooms to persons" were taken from the Sims Scale (34), but in this study they are designated by descriptive titles rather than by the rating numbers used by Sims. The Sims Scale does not in any way distinguish between large and small rooms; neither does it specify whether the occupants are children or adults. For these reasons this table must be considered a very rough index of whether the living quarters are crowded or spacious.

The table shows no differences between groups A and B in regard to financial dependence, general living quarters, and ratio of rooms to persons. Group C has a slightly larger percentage of children coming from families that are financially dependent and families that live in flats than do the other two groups.

D. FINDINGS ON ITEMS OF QUESTIONABLE "OBJECTIVITY"

The items which are to be considered in the remaining part of this discussion are of the type discussed earlier as "data that must be frankly admitted as relatively subjective" (see section of study on "Dependability and Reliability of Data"). One would expect such matters as the relationship of the parents to the child and to each other to be very important factors in the development of a child's social relationships. Much has been written about these relationships in a general way, but there are very few systematic investigations with clear-cut definitions that deal directly with their bearing on the child's social behavior.

RELATIONSHIP OF THE FATHER TO THE CHILD

The item (in Table XXVII) "Father present but seldom sees child" includes fathers who are absent from town for long periods of time or fathers who come home late and do not see much of the child.

TABLE XXVI

COMPARISON OF THE THREE GROUPS IN REGARD TO FINANCIAL DEPENDENCE AND LIVING QUARTERS

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Financially dependent on social agencies	10	4 a, 4 s, 2 u	10	20
Living quarters:				
Flat	52	19 a, 19 s, 14 u	52	65
Apartment	13	3 a, 5 s, 5 u	12	7
House	30	12 a, 11 s, 7 u	32	27
Hotel	2	2 a, 0 s, 0 u	0	0
Institution	2	1 a, 1 s, 0 u	0	0
No information	1	1 a, 0 s, 0 u	4	1
Total	100	38 a, 36 s, 26 u	100	100
Ratio of rooms to persons:				
Very crowded	8	5 a, 2 s, 1 u	10	6
Fairly crowded	32	10 a, 13 s, 9 u	36	43
Adequate space	26	9 a, 9 s, 8 u	14	17
Fairly spacious	5	1 a, 2 s, 2 u	8	4
Spacious	1	1 a, 0 s, 0 u	2	0
Insufficient information*	28	12 a, 10 s, 6 u	30	30
Total	100	38 a, 36 s, 26 u	100	100

* Also includes children living in institutions.

The item "Father has negative attitude" includes fathers who "do not want to have the children around," who "do not want to be bothered" with them, or who show an open dislike for the child. Fathers who show a "positive interest," however, are fathers who regularly spend some time with the child, play with him, help

TABLE XXVII

COMPARISON OF THE THREE GROUPS IN REGARD TO THE RELATIONSHIP OF THE FATHER TO THE CHILD

	A Problem Group			B Well-adjusted Group		C Unselected Group		Difference between Percentages; P.E. of Difference; Significance Quotients (S.Q.)		
	No. of Cases	Sub-groups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent	A and B	A and C	B and C
Father absent or dead	13	4 a 4 s 5 u	22	4	13	13	18	9±5.5 (S.Q. 1.6)	4±4.7 (S.Q. 0.9)	5±5.1 (S.Q. 1.0)
Father present but seldom sees child	11	5 a 3 s 3 u	19	4	13	8	11	6±5.4 (S.Q. 1.1)	8±4.3 (S.Q. 1.9)	2±4.8 (S.Q. 0.4)
Father has "negative" attitude	4	3 a 1 s 0 u	7	0	■	4	6	7±2.3 (S.Q. 3.0)	1±3.0 (S.Q. 0.3)	6±1.9 (S.Q. 3.2)
Father shows "positive" interest	28	11 a 10 s 7 u	48	22	74	46	64	26±7.0 (S.Q. 3.7)	16±5.9 (S.Q. 2.7)	10±6.6 (S.Q. 1.5)
Child in institution or with relatives	2	1 a 1 s 0 u	4	0	■	1	1	.....	.....	.....
Total	58	24 a 10 s 15 u	100	30	100	72	100	.....	.....	.....
Summary of negative findings:										
Father absent or dead or seldom sees child or has "negative" attitude	28	12 a 8 s 8 u	48	8	27	25	35	21±7.0 (S.Q. 3.0)	13±5.8 (S.Q. 2.2)	8±6.7 (S.Q. 1.2)

put him to bed or take him out for a walk. The data regarding the relationship of the father to the child are based largely on the mothers' statements. In some instances, the reports and observations of others were also available and occasionally the child himself revealed aspects of this relationship. Since the data on this point are for the most part limited to the father's relationship *as reported by the mother*, this material must be frankly considered as subjective in character. (See earlier discussion of "Dependability and Reliability of Data.") Cases in which the information in regard to the father's relationship to the child was considered insufficient or questionable were not used in this table.

The relationship of the mother to the child would have been of equal, if not of more, importance. Most of the records, however, did not contain as specific comments about the mother's interest in the child and the time spent with the child as they did about the father's. This is probably due to the fact that usually a mother is about the house, more or less constantly; she usually either takes care of the child herself or supervises his care. Therefore, it is difficult to estimate her interest in the child or how much of her time is actually spent with him.

This table indicates that there are significant differences between groups A and B, and groups B and C, in the proportion of fathers showing a "negative" attitude toward the child. Groups A and C are about equal, while Group B, the well-adjusted group, stands out for its absence of the fathers showing a "negative" attitude, and its predominance of fathers showing a "positive" interest in the child as compared with the two other groups. The difference between groups A and B in regard to "positive" interest is statistically significant; the differences between A and C, and B and C, are not.

The summary at the bottom of Table XXVII indicates that there is a significantly larger proportion in Group A, the problem group, of fathers who were absent or dead, or were present but seldom saw the child, or who showed a "negative" attitude, than there were in Group B. The differences as compared with Group C are, however, not significant.

PARENTS' AGREEMENT ON QUESTIONS OF CHILD-TRAINING

Table XXVIII gives a comparison of the three groups in regard to agreement and disagreement between the parents on questions of child training. Here again, as in some of the previous tables, all cases giving insufficient or questionable information in regard to

this item were not included in the table. These data are based upon information obtained from the parents themselves (usually the mother).

The table shows that Group A, the problem group, has the lowest percentage of "agreement" between parents, Group C having a lower percentage than Group B. The differences between Group A and groups B and C appear to be significant while

TABLE XXVIII

COMPARISON OF THE THREE GROUPS IN REGARD TO THE PARENTS' AGREEMENT ON QUESTIONS OF CHILD TRAINING

	A Problem Group			B Well-adjusted Group		C Unselected Group		Difference Between Percentages; *P.E.* of Difference; Significance Quotients (*S.Q.*)		
	No. of Cases	Sub-groups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent	A and B	A and C	B and C
Only one adult in household	9	3 a 2 s 4 u	15	3	11	9	16	4±5.2 (*S.Q.* 0.8)	1±4.5 (*S.Q.* 0.2)	5±5.3 (*S.Q.* 0.9)
Training left to one parent	7	4 a 2 s 1 u	12	1	4	7	12	8±3.9 (*S.Q.* 2.1)	0±4.1 (*S.Q.* 0)	8±3.9 (*S.Q.* 2.1)
Agreement	15	4 a 5 s 6 u	26	15	58	25	43	32±7.6 (*S.Q.* 4.2)	17±5.9 (*S.Q.* 2.9)	15±7.9 (*S.Q.* 1.9)
Agreement and disagreement	1	1 a 0 s 0 u	2	2	8	3	5	6±3.8 (*S.Q.* 1.6)	3±2.3 (*S.Q.* 1.3)	3±4.1 (*S.Q.* 0.7)
Disagreement	26	11 a 11 s 4 u	45	5	19	14	24	26±6.8 (*S.Q.* 3.8)	21±5.8 (*S.Q.* 3.6)	5±6.4 (*S.Q.* 0.8)
Total	58	23 a 20 s 15 u	100	26	100	58	100	.....	.....	.....

that between groups B and C does not. The item "disagreement" shows results consistent with those on "agreement," Group A having a significantly larger percentage of "disagreement" than either Group B or C, and Group B having the least "disagreement." These results seem definitely to indicate that children who present problems of social adjustment more frequently have parents who do not agree on questions of child training, while children who are socially well adjusted more frequently have parents who agree on these questions, as compared with each other and an

unselected group of children. The subgroups of Group A are again very similar.

MARITAL RELATIONSHIPS OF PARENTS

Table XXIX shows a comparison of the three groups in regard to the question of marital relationships between parents. Some of these data are based on statements made by the parents themselves and some are based on the impressions of workers who had known the family for at least six months. Whenever the record contained both a statement by a parent and an impression by the worker, the parent's statement was used in this study in preference to the worker's impression. There were many cases that contained insufficient or questionable information and which were, therefore, not used for this table. Obviously a statistical analysis of so subtle and difficult a question as that of marital relationships cannot be considered very accurate and dependable.

Table XXIX shows that Group B has a much larger percentage of parents who are "congenial" than Group A and a somewhat larger one than Group C. Group A has more parents who were separated at one time or another, or who are divorced, than do the other two groups. The three groups are about equal in regard to general "uncongeniality" (without separation or divorce). The trends are of interest and indicate a possible relationship between marital relationship of parents and social adjustment of the child. Even though it appears possible that the differences between the groups would prove statistically significant, they were not subjected to such analysis because of the very obvious lack of dependability of the original data.

PREVIOUS PLAY OPPORTUNITIES

Table XXX shows a comparison of the three groups in regard to the child's previous opportunities for play with other children, exclusive of whatever play opportunities he had had with his own siblings or in a school.

The item " 'seldom' played with children" means that only on rare occasions did the child have a chance to play with other children. "Played 'some' with children" means that he played about once or twice a week with them; "frequent" play means that he

played with them practically every day. Dependable data on this factor are available on only a portion of the cases, as indicated by the numbers of cases listed under "Insufficient information." For

TABLE XXIX

COMPARISON OF THE THREE GROUPS IN REGARD TO MARITAL RELATIONSHIPS OF PARENTS

	A Problem Group			B Well-adjusted Group		C Unselected Group	
	No. of Cases	Subgroups	Per Cent	No. of Cases	Per Cent	No. of Cases	Per Cent
Congenial (parents' statement)	7	3 a, 4 s, 0 u	15	10	45	10	24
Congenial (impression)	6	2 a, 2 s, 2 u	13	2	9	5	12
Neither congenial nor uncongenial (parents' statement)	2	0 a, 0 s, 2 u	4	0	0	2	5
Neither congenial nor uncongenial (impression)	3	1 a, 1 s, 1 u	6	0	0	1	2
Uncongenial (parents' statement)	7	3 a, 1 s, 3 u	15	3	14	8	19
Parents separated or divorced	15	5 a, 5 s, 5 u	32	5	23	9	21
One parent absent or dead	7	3 a, 3 s, 1 u	15	2	9	7	17
Total	47	17 a, 16 s, 14 u	100	22	100	42	100

such data as are available the table shows only slight differences among the three groups. Group B has the smallest percentage of children who had never played with other children and the largest percentage of children who had "frequently" played with other

children. (The probable errors of these differences were computed but the differences did not appear to be significant.)

TABLE XXX

COMPARISON OF THE THREE GROUPS IN REGARD TO THE CHILD'S PREVIOUS OPPORTUNITIES FOR PLAY WITH OTHER CHILDREN

(Outside Family or School)

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
No previous play with children	11	6 a, 4 s, 1 u	6	11
"Seldom" played with children	27	10 a, 8 s, 9 u	28	29
Played "some" with children	16	5 a, 8 s, 3 u	6	19
Frequently played with children	17	6 a, 6 s, 5 u	30	18
Insufficient information	29	11 a, 10 s, 8 u	30	23
Total	100	38 a, 36 s, 26 u	100	100

AGE AT ENTRANCE TO NURSERY SCHOOL OR KINDERGARTEN

Previous opportunities for play with other children were also studied from another angle. The ages of the children in the three groups when they entered a nursery school, kindergarten, or other organized play group are given in Table XXXI.

This table shows very little difference among the groups, except that Group B has the smallest, and Group C the largest, percent-

age of children who had never been in school. From this table it would seem that the mere fact that the child has attended a nursery school, kindergarten, or other organized play group, and the age at which he entered such a school, have not as much to do with his social adjustment as one might expect.

TABLE XXXI

DISTRIBUTION OF CASES IN THE THREE GROUPS ACCORDING TO AGE AT ENTRANCE TO NURSERY SCHOOL OR KINDERGARTEN

Age at Which Child Entered School	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Per Cent	Subgroups	Per Cent	Per Cent
Less than two years	0		4	0
Two to three years	23	6 a 12 s 5 u	26	24
Three to four years	23	6 a 9 s 8 u	28	9
Four to five years	15	6 a 7 s 2 u	14	6
Five to six years	8	5 a 1 s 2 u	10	7
Spasmodic school attendance only	0		*	2
Has never been in school	26	14 a 6 s 6 u	18	46
Insufficient information	5	1 a 1 s 3 u	0	6
Total	100	38 a 36 s 26 u	100	100

LENGTH OF TIME IN SCHOOL OR PLAY GROUP

Similar results are apparent in regard to the length of time the child had been in a nursery school, kindergarten, or other organized play group prior to the first report of the child's social relationships used in this study. Fifty-three per cent of the children in Group A and 58 per cent of the children in Group B had been in a school less than six months; 10 per cent of the children in Group A and 22 per cent of the children in Group B had been in school for six to eleven months, and 6 per cent in Group A and 2 per cent in Group B had been in a school for over one year (the remaining children had never been in school at all).

The fact that such small differences are found between socially unadjusted and socially well-adjusted children, in the amount of play and school experience they have had, is of special interest in view of the studies of Parten (31) and Walsh (38) and the commonly accepted viewpoint that nursery schools and kindergartens are "socializing" agencies for the child. It is quite probable, however, that the influence of the school on the children of this study is not adequately indicated by these figures, since more than 75 per cent of the children in both groups A and B had either not been in school at all or had been in school less than six months. This could hardly be considered sufficient time to modify greatly a child's social relationships to other children. It is possible that a systematic review of the social adjustment of the children in Group A, the problem group, after a longer school experience, would have indicated a decided change in their social behavior. The records did not, however, include such data gathered on such a systematic time interval basis as would make possible statistical analysis of this point.

In summarizing the findings in regard to the child's previous opportunities for play with other children, all one can say, therefore, is that the socially well-adjusted children tended to have had somewhat more previous play experience with other children and that they tended to have entered a nursery school or kindergarten at a somewhat earlier age than did the children in the other groups. The differences are, however, not outstanding, nor are there any marked differences in the length of time the child had been in a school.

OTHER PERSONALITY AND BEHAVIOR PROBLEMS OF THE CHILD

Table XXXII compares the three groups in regard to the child's personality and behavior problems other than those of his relationship with other children. The items in this table are not mutually exclusive, as one child may present a number of personality and behavior problems. The data are based on information gained from parents, teachers, and members of the Institute's staff. A summary of Table XXXII is given in Table XXXIII, in which the problems are grouped according to larger classifications.

Inspection of the distribution of the cases according to the individual problems (Table XXXII) reveals several interesting findings: Group A, the problem group, shows a generally higher frequency of almost all problems than the other two groups. Group B, the well-adjusted group, on the other hand, has a smaller proportion of most problems than the other groups. It must be remembered, however, that Group B contains proportionally fewer children who came to the attention of the Institute through its clinic service than do the other two groups, and that clinic children were referred because of particular problems, while nursery-school children, for the most part, were examined routinely. This selective factor is not present in Group C, however, since the proportion of nursery-school and clinic children contained in Group C is exactly the same as that of Group A. Therefore, even though the findings relative to Group B should perhaps be discounted because they may be weighted by this factor, there remains the considerably higher frequency of most problems in Group A than in Group C.

The problems that are particularly frequent in Group A, the problem group, as compared with the other groups, are those of "negativism" (or stubbornness), "enuresis," and "overdependence on adults." For these items the probable errors of the differences between percentages were computed, with the following results: in regard to negativism the difference between the percentages of groups A and B is 18 ± 4.7 per cent, which may be considered a significant difference; those between groups A and C (10 ± 4.3 per cent) or between groups B and C (8 ± 4.5) do not, however, appear

TABLE XXXII

DISTRIBUTION OF CASES IN THE THREE GROUPS BY BEHAVIOR AND PERSONALITY PROBLEMS

Problems (Other than Social Adjustment to Children)	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Percentage of Cases	Subgroups	Percentage of Cases	Percentage of Cases
No behavior problems	0		4	8
1. Temper	45	22 a 11 s 12 u	38	47
2. Destructiveness	8	6 a 0 s 2 u	2	4
3. Negativism, stubbornness, obstinacy	34	17 a 11 s 6 u	16	24
4. Disobedience; generally difficult to manage	33	23 a 2 s 8 u	26	27
5. Running away (from home or school)	2	1 a 1 s 0 u	2	2
6. "Stealing," dishonesty	4	2 a 1 s 1 u	0	3
7. "Lying"	2	1 a 1 s 0 u	0	2
8. Crying, sulking, whining	22	10 a 7 s 5 u	12	12
9. Fire-setting	2	1 a 0 s 1 u	0	1
10. Impudence to adults, "talking back," etc.	1	1 a 0 s 0 u	2	1

TABLE XXXII—*Continued*

Problems (Other than Social Adjustment to Children)	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Percentage of Cases	Subgroups	Percentage of Cases	Percentage of Cases
11. Irritability	1	0 a, 0 s, 1 u	2	1
12. Demanding adult attention, "showing off"	6	3 a, 0 s, 3 u	4	4
13. Feeding difficulties	33	10 a, 13 s, 10 u	28	27
14. Vomiting	0	.....	2	1
15. Sleeping difficulties (restlessness, crying, etc.)	10	2 a, 5 s, 3 u	10	8
16. Enuresis	31	13 a, 11 s, 7 u	16	23
17. Soiling	3	1 a, 0 s, 2 u	2	1
18. Finger-sucking, also lip- or tongue-sucking	13	5 a, 5 s, 3 u	18	25
19. Nail-biting, nose-picking, lip-picking, etc.	10	6 a, 2 s, 2 u	20	10
20. Other unusual habits—eating garbage, picking blankets, etc.	1	0 a, 0 s, 1 u	4	4
21. Rocking	2	1 a, 0 s, 1 u	0	1
22. Masturbation	10	6 a, 0 s, 4 u	12	12

TABLE XXXII—*Continued*

Problems (Other than Social Adjustment to Children)	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Percentage of Cases	Subgroups	Percentage of Cases	Percentage of Cases
23. Other sex habits: peeping, exhibiting, sex play with other children	1	1 a, 0 s, 0 u	2	0
24. Fears of things or new situations	9	1 a, 3 s, 5 u	8	7
25. Fears of stranger, self-consciousness toward adults	7	0 a, 5 s, 2 u	6	5
26. "Nervousness" and "queerness," tenseness, shaking, trembling, etc.	11	3 a, 5 s, 3 u	2	4
27. Emotional instability, moods, etc.	6	4 a, 0 s, 2 u	0	0
28. Excitability	1	1 a, 0 s, 0 u	2	1
29. "Spells," tics, mannerisms	0	.....	0	5
30. Convulsions, fainting	0	.....	4	1
31. Daydreaming	9	0 a, 8 s, 1 u	2	4
32. "Laziness" and "dawdling"	0	.....	4	1
33 Unresponsiveness, indifference, and inattentiveness	9	1 a, 5 s, 3 u	2	0
34. Lack of initiative	4	0 a, 4 s, 0 u	4	1
35. Overdependence on adults	17	4 a, 7 s, 6 u	2	2

TABLE XXXII—*Continued*

Problems (Other than Social Adjustment to Children)	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	Percentage of Cases	Subgroups	Percentage of Cases	Percentage of Cases
36. Speech—retardation	8	1 a, 3 s, 4 u	0	2
37. Speech—refusal under certain circumstances	3	0 a, 3 s, 0 u	■	■
38. Speech—merely infantile	3	3 a, 0 s, 0 u	10	4
39. Speech—defects, stuttering, lisps, etc.	7	3 a, 2 s, 2 u	10	■
40. School—advice *re* grade placement	5	2 a, 2 s, 1 u	10	3
41. School—scholastic difficulties	1	1 a, 0 s, 0 u	0	2
42. Retardation (apparent) although average or superior in test	5	0 a, 2 s, 3 u	0	2
43. Retardation (real) (according to tests also)	4	2 a, 1 s, 1 u	■	1
44. Distractibility: lack of concentration, etc.	4	3 a, 0 s, 1 u	8	4
45. Restlessness	5	3 a, 0 s, 2 u	0	4
46. Miscellaneous	3	1 a, 0 s, 2 u	0	3

to be significant. For enuresis the difference between the percentages of groups A and B is 25 ± 4.7 per cent, which may be considered as quite significant; between groups A and C (8 ± 4.2 per cent), or B and C (7 ± 4.5), the differences are again not significant. Because of the possible weighting factor in Group B discussed above, however, these results cannot be regarded as conclusive findings but may be considered trends.

The item "Dependence on adults," on the other hand, shows a predominance of the problem in Group A, not only as compared with Group B, but also as compared with Group C, the unselected group. For this item the differences between the percentages of groups A and B and groups A and C are 15 ± 2.9 per cent and 15 ± 2.7 per cent, respectively, both of which appear highly significant. There is no difference between groups B and C, however. These findings seem to indicate that there is a definite, positive relationship between dependence on adults and problems of social adjustment.

This is further borne out by the results of the following inquiry closely related to overdependence on adults. For the purpose of this study, such parental habits as holding a child's hand before he falls asleep, lying down with him at nap or night-time, frequently taking the child into the parents' bed in the middle of the night (when no illness or fear reactions of the child were present), and rocking the child to sleep were considered as definite signs indicative of parental oversolicitude. The findings on this question show that the parents of 24 per cent of the children in Group A and 35 per cent of the children in Group C showed such signs of oversolicitude, whereas there were only 9 per cent in Group B, the well-adjusted group.

The high frequency of occurrence of enuresis in Group A, the problem group, discussed above, and its possible relationship to overdependence on adults, offers possibilities for interesting speculation.

Other problems that appear to be more frequent in Group A than in the other two groups are "destructiveness" (No. 2), "crying, sulking, whining" (No. 8), "nervousness, etc." (No. 26), "emotional instability, etc." (No. 27), "daydreaming" (No. 31),

"unresponsiveness, etc." (No. 33), and "speech retardation" (No. 36). The number of cases in which these problems occurred, however, was too small to justify statistical treatment of the differences.

LARGER CLASSIFICATIONS OF BEHAVIOR AND PERSONALITY PROBLEMS

In the larger classifications of behavior and personality problems (Table XXXIII),[13] the greater frequency of almost all problems for Group A becomes still more apparent. Group A is found to exceed groups B and C in items 1, 2, 4, 5, 6, and 10, the number of instances of "conduct and discipline problems," "daydreaming, unresponsiveness, laziness, and lack of initiative," "overdependence on adults," and "question of retardation" being conspicuously high in Group A, as compared with the other groups. Outstanding exceptions are found in regard to items 3 and 9. The problem group is found conspicuously lower than either of the other groups in number of instances of "finger-sucking, nail-biting, masturbation, etc.," while the well-adjusted exceeds both the others somewhat in problems of school placement.

E. ANALYSIS OF THE SUBGROUPS

A second and minor objective of this study, as stated earlier, was to learn whether or not the socially unadjusted children fall rather naturally into "personality types," such as the "ascendant" and "submissive" types described by Floyd and Gordon Allport (3 and 4), and, if so, whether "ascendance" and "submission" as found in children of preschool age appear to be related to sex, chronological age, physical condition, intelligence, and the various other possible factors which were included in this study.

The reason for investigating this particular problem was that, when a number of children whose behavior appears to be socially unadjusted are grouped together, a question that naturally arises is: Should children showing reactions of apparently such opposite nature as those represented by extreme aggressiveness and extreme shyness be included in one and the same group? Are not,

[13] Since Group B contains only half as many cases as the other two groups, and since figures here represent *number of instances* instead of percentages, data for Group B must be doubled to make them comparable to groups A and C.

TABLE XXXIII

DISTRIBUTION OF CASES IN THE THREE GROUPS ACCORDING TO LARGER CLASSIFICATIONS OF BEHAVIOR AND PERSONALITY PROBLEMS

	A Problem Group (100 Cases)		B Well-adjusted Group (50 Cases)	C Unselected Group (100 Cases)
	No. of Instances	Subgroups	No. of Instances	No. of Instances
1. Conduct and discipline problems (items 1 through 12 of Table XXXII)	160	87 a, 34 s, 39 u	52	128
2. Faulty routine habits (feeding, sleeping, toilet; items 13 through 17)	77	26 a, 29 s, 22 u	29	60
3. Finger-sucking, nail-biting, masturbation, etc. (items 18 through 23)	37	19 a, 7 s, 11 u	28	52
4. Fears, "nervousness," spells, convulsions, etc. (items 24 through 30)	34	9 a, 13 s, 12 u	11	23
5. Daydreaming, unresponsiveness, laziness, and lack of initiative (items 31 through 34)	22	1 a, 17 s, 4 u	6	6
6. Overdependence on adults (item 35)	17	4 a, 7 s, 6 u	1	2
7. Speech (items 36 through 39)	21	7 a, 8 s, 6 u	10	14
8. School problems (items 40 and 41)	6	3 a, 2 s, 1 u	5	5
9. Question of retardation (apparent or real; items 42 and 43)	9	2 a, 3 s, 4 u	0	3
10. Miscellaneous (items 44 through 46)	12	7 a, 0 s, 5 u	4	11

one might say, children who get into frequent conflicts with other children, because of their aggressiveness and fighting, fundamentally so different from the children who are unable to enter into satisfactory play-relationship with other children, because of timidity and shyness, that it would be absurd to study them as if they were similar? This question was raised by various workers interested in this attempt to study problems of social adjustment. It is one which occurs to anyone approaching these problems and there is much to be considered on both sides.

Quite a few investigators have made use of the *ascendance-submission* test devised by F. H. and G. W. Allport (3 and 4) and based upon the assumption that each individual has both an ascendant and submissive integration. "In some individuals the two traits virtually cancel in frequency of expression, so that we speak of an 'average' subject," writes G. W. Allport. "In many subjects, on the other hand, one of the two tendencies is sufficiently pronounced to justify a differential rating in terms of ascendance or submission" (4, p. 118).

And again the Allports say:

> It must be understood that a person may be ascendant in some situations and submissive in others. The most dominant man among his peers may be thrown into the passive attitude even by the recollection of his parents or early teachers. We may safely say, however, that in dealing with equals, and in the aggregate of their responses, most men may be said to fall in one or the other of these two classes. . . . . In every walk of life the "leading" type and the "following" type may be readily noted [3, p. 13].

Allport (4) points out that age has much to do with the degree of integration achieved and that by the time adolescence is passed traits frequently are set to such a degree that a fair prediction may be made concerning a person's tendency to control, or to be controlled by, other people in social situations. These hypotheses are now being experimented with quite widely. The "Test for Ascendance-Submission," which the Allports standardized with 400 college students, was used by Bender (9) in a study of 345 other college students in an effort to ascertain the relation of ascendance-submission to other factors in personality. The results were mainly negative, no significant correlations being found between the scores of the ascendance-submission test and the factors of height, weight, intelligence, or scholarship.

Even if these personality types are definitely recognizable in many individuals at the adult level, whether they are often established while the child is still of *preschool age* and whether they bear any significant relationships to other factors in social adjustment constitute a separate set of questions.

> We know that babies show wide differences in behavior with rather definite tendencies to dominating or submissive behavior and the like; but there is no systematic information regarding the relation of dominance or submission to the differences in ages between a given child and his partner, or to differences in experience such as presence and number of brothers and sisters, number of adults in the home, physical differences such as height, weight, strength, health, emotional stability, and normal activity; not to mention other subtle differences of habit and temperament which might affect these social responses and would need to be understood before we could derive dependable laws of social and personality development [28, p. 201].

In working with children of preschool age who presented problems of social adjustment, and in inspecting a great many cases when outlining this study, we were struck by the difficulty encountered in trying to separate "aggressive" children from "submissive, shy" ones. Again and again it was found that a child who was usually very shy and kept aloof from other children exhibited under certain circumstances reactions of aggressiveness, such as hitting and annoying others. Whether shyness and its apparent opposite, aggressiveness, may not be manifestations of one and the same underlying difficulty—namely, a fundamental lack of security in an individual's relationships to others—has been discussed by various writers in the literature. Such a social insecurity may show itself either in timidity or in some sort of an overcompensation expressing itself in pugnaciousness and similar characteristics.

Jones (26, p. 195), in discussing studies of personality and social adjustment in early childhood, says:

> A psychoanalyst or an Adlerian "individual psychologist" would no doubt be justified in passing a judgment of naïveté upon a person who accepts aggressive behavior immediately as an index of aggressive character. In a given case, our understanding might be closer to the actual dynamics of character if we perceived aggressiveness as an index of fundamental shyness, or

of a momentary fear, or of jealousy, or of a reaction to repressions in the home. Perhaps one of the reasons that our personality measurements show, statistically, so marked a degree of specificity, is because compensations tend to act in diversely specific ways, and because our tests and ratings deal with behavior as it is *naïvely* seen, rather than as it is motivated.

It was felt that some interesting light on this question of ascendant and submissive personality reactions at the preschool level might be gleaned from this study. Are the personality types described by the Allports found in children of preschool age, or is it possible, as Jones suggests, that the latent content of behavior is more unified than it appears to be in our statistical analyses of its manifest patterns? With this end in view, the varying forms of socially maladjusted behavior represented in Group A, the "problem" group of this study, were first studied together as one group, and were subsequently divided, on an ascendance-submission basis, into three more-or-less specific types and analyzed separately. This was done for the purpose of finding out whether such statistical analysis of these different types of socially maladjusted behavior, and their relationships to other factors, appears to differentiate between them as behavior of genuinely different personality types.

In dividing Group A, the "problem" group, into subgroups, the following classifications were used:[14]

1. Group of children showing mostly "ascendant" behavior, i.e., assertive, active, self-expressive, and generally dominant; the "leader" was included in this group.
2. Group of children showing mostly "submissive" behavior, i.e., passive, withdrawing, yielding; the "follower" was included in this group.
3. Group of children that could not be classified as either of the above.

FINDINGS ON ASCENSION AND SUBMISSION

It was found that of the 100 socially unadjusted children in the "problem group," 38 seemed classifiable as "ascendant" types and

[14] A list of the descriptive statements that were made about the social relationships of these children (and the way in which the numbers of these statements were used to support the classifications made) will be found in the Appendix at the end of this report.

The concepts of "ascendant" and "submissive" behavior were borrowed from the Allports (3 and 4) and modified to a certain extent so as to be more applicable to the behavior of young children.

36 as "submissive" types, but 26 cases were so varied in their social behavior that it did not seem justifiable to classify them as either. They were, therefore, grouped as "unclassifiable."

When "ascendant," "submissive," and "unclassifiable" cases are studied in relation to the nineteen possible factors already analyzed for their relationships to the socially unadjusted group as a whole, the following are the findings:[15]

1. In regard to only two items—sex and chronological age—are any marked trends indicated. The "ascendant" type occurs more frequently among boys than girls, and the "submissive" type occurs more frequently among girls than boys. This appears to bear out the popular conception that boys tend to be more assertive than girls. (For details, see Table XII.)

Children of the "ascendant" type tend to be slightly older than those of the "submissive" type, the median age for the former being 49.5 months and for the latter 45.8 months; the median age for the "unclassifiable" group is 45.7 months. These findings are probably to be expected, since very young children are less likely to assume aggressive, assertive attitudes than are somewhat older children. (For details, see Table XIII.)

2. Slight trends seem apparent in regard to the place of the child in the family and his relationships to his siblings. In Tables XVIII, XIX, and XX, no differences are apparent for the "only," the oldest, or the youngest child, but the "ascendant" type seems slightly more frequent when the child is either the second or third child in the family. The numbers are too small to be given serious consideration, but the apparent trends do not seem to be in agreement with the findings of Goodenough and Leahy (21) that oldest children are frequently lacking in aggression, self-confidence, and qualities of leadership. (See review of their study in section A.)[16]

[15] Probable errors and standard deviations were not computed for these data because of the small numbers of cases in these subgroups.

[16] Nor are these findings in agreement with those of Bender (6) who found in his study of college students, referred to earlier, no reliable differences in mean scores on Allport's ascendance-submission test as a result of intelligence, scholarship, *position in family*, or class in college. Such suggestive differences as his group showed were in the direction of *submissiveness* on the part of the highest in scholarship, on the part of the intermediate children in the family, and on the part of the Seniors in college.

Table XXI, which analyzes the relationships between the child and his siblings, indicates that there are more children showing "ascendant" behavior than "submissive" among those who "do not get on well" with their older siblings and among those whose jealousy of the younger siblings still persisted. Here again the numbers of cases involved are very small, but these results are to be expected, since the aggressive, dominating child would be more likely not to get on well with his siblings than would be the more passive, unaggressive type.

3. Interesting trends seem to be indicated in the relationships between these "types" and personality and behavior problems other than those of the child's social relationships (see Tables XXXII and XXXIII). The "ascendant" type of child is found with conspicuous frequency among those children who present conduct and discipline problems. This also is what one would expect. Such habits as finger-sucking, nail-biting, and masturbation seem also a little more frequent among the "ascendant" group, while daydreaming and other forms of unresponsiveness are conspicuously frequent among the "submissive" type, who also appeared to show fears and nervousness somewhat more frequently.

4. For the number of cases in these subgroups, no consistent trends are apparent in the relationship of the personality types to the following:

Physical condition of child (Table XIV)
Intelligence of the child (Tables V and XVI)
Number of children in the family (Table XVII)
National origin of the father (Table XXII)
Ages of the parents (Table XXIII)
Education of parents (Table XXIV)
Occupation of the father (Table XXV)
Financial dependence of the family on social agencies (Table XXVI)
Living quarters of the family (Table XXVI)
Relationship of the father to the child (Table XXVII)
Parents' agreement on questions of child training (Table XXVIII)
Marital relationships of parents (Table XXIX)
Previous opportunity for play with other children (Table XXX)
Age at entrance to nursery school or kindergarten (Table XXXI)

The children of these different personality types are very similar in intelligence, as measured by tests. The 23 cases of the "ascendant" group for whom data on results of the Stanford-Binet test were available, have a median IQ of 107.0; the 23 "submissive" cases have a median IQ of 107.6; the 20 unclassifiable cases show a median IQ of 106.6. On the Merrill-Palmer performance test, data were available on 63 cases. The scores in terms of standard deviation are −.11 for the 23 cases classified as "ascendant"; −.08 for the 24 "submissive" cases; and −.27 for the 16 grouped as "unclassifiable."

The mean number of children in the family is also similar for these three subgroups, being 2.5 for the "ascendant," 2.8 for the "submissive," and 3.0 for the "unclassifiable."

DISCUSSION OF FINDINGS

An extensive discussion of the literature bearing on the question of the existence of "personality types" would hardly be warranted here, since this problem constitutes only a minor objective of an exploratory nature in this study.[17]

The data of this study do not, of course, furnish any conclusive evidence on whether or not such "personality types" exist at the preschool age level. Those who question the existence of such types and think rather that the large majority of people tend to react in different ways to different situations, even when the situations seem very similar, will find argument in support of their position in the fact that in this study 26 cases seemed "unclassifiable" and in certain data in the Appendix which show that children of the "ascendant" type occasionally reacted to social situations with behavior that is described as of the opposite type, and vice versa. On the other hand, the fact that in 74 cases it seemed possible to classify the children as predominantly "ascendant" or "submissive" in their reactions and the data in the Appendix which support these classifications lend support to the view that empirical patterns which are consistent from one situation to another can be found in most young children.

[17] The reader is referred to an article by Heinrich Klüver, "Do Personality Types Exist?" *American Journal of Psychiatry*, Vol. X, No. 5 (March, 1931), and to a review of the problem and related studies in Murphy and Murphy (28, pp. 323–33).

Neither are these data conclusive on the question as to whether "ascendant" and "submissive" reactions represent one and the same underlying mechanism. However, the predominantly *negative* findings which result when the relations of a number of other items to "ascendant" and "submissive" behavior fail to differentiate between these two "types" suggest the probability that such types do not have the degree of specificity sometimes attributed to them.

F. SUMMARY OF FINDINGS

The present study represents an attempt to discover possible relationships, as found in three groups of cases studied by the Preschool Department of the Institute for Juvenile Research, between the social behavior of children of preschool age and various other data that have been recorded about the child and his environment. Clinical case records were used as data in order to study children *whose social behavior in natural life-situations was characteristically well-adjusted or unadjusted.*

From 635 case records of the Preschool Department three groups of records were selected for analysis: the "problem" group, Group A, is made up of 100 cases of children who were socially *unadjusted;* one control group, Group B, consists of 50 cases of children who were considered socially *well adjusted;* Group C is a further control group consisting of 100 *unselected* cases chosen at random from the remaining records of the Preschool Department. The proportion of cases referred to the Institute through nursery schools and through its clinical service is the same for Group C as for Group A. Group B has a relatively higher number of cases referred by nursery schools, as compared with the other groups, because the available number of records of well-adjusted children was too limited to make the same proportions possible.

In this study "social adjustment" and "unadjustment" refer only to the child's relationships to children other than his own siblings. Classifications of the children are based on descriptions and opinions of the child's behavior given chiefly by parents, teachers, social workers, and members of the Institute's staff. As a check on the dependability and reliability of the original data,

tabulations were made for each case record as to the number of informants, the number of separate reports in regard to the child's social relationships, and the length of time covered by these reports. The results show that in most of the cases there were at least two informants and in more than half there were three or more informants; practically all cases contained more than one report and most of them contained three or more separate reports about the child's social relationships, some cases containing as many as thirty or forty separate reports. Furthermore, the reports of over half the cases cover a period of more than six months and approximately half of them cover a period of more than a year.

The reliability of the basis of selection of cases for the "problem" group and the well-adjusted group was checked by having two psychologists, independent of the investigator, classify a sampling of abstracts of case records, assigning cases to groups A and B according to the definitions established for the groups. There was almost complete agreement between the two independent raters and the investigator as to the groups into which the cases belonged.

On the basis of these criteria, it seems justifiable to assume that these groupings are valid—namely, that Group A does consist of children who present problems of social adjustment in their relationships to other children and that Group B is composed of children who enter into social relationships with other children with relative ease.

A second and minor objective of this study was to ascertain whether *socially unadjusted* children fall into rather natural groups, such as "ascendant" or "submissive types," and whether such *types* at the preschool level appear to be related to sex, chronological age, physical condition, intelligence, and the various other possible factors which were included in this investigation. With this end in view, the 100 cases of the "problem" group were first studied as one group and later subdivided into three subgroups namely; (1) children showing mostly "ascendant," assertive behavior, (2) children showing mostly "submissive," passive, withdrawing behavior, and (3) children that could not be classified as either of the above.

A comparative analysis of the three major groups in regard to the nineteen items considered as possible factors in social adjustment (listed earlier under "Objectives of the Present Study"), resulted in the following findings:

1. The three groups are about equal as to sex.

2. The children in the "problem" group tend to be somewhat older than the children in the other groups. This difference in age appears to be significant between the "problem" group and the unselected group, but does not appear so between the "problem" group and the well-adjusted group.

3. No outstanding differences between the three are apparent in regard to general physical condition, although the data suggest a slight tendency for the physical condition of the "problem" group to be "less good" than that of the other two groups.

4. Significant differences among the groups are found in regard to intelligence ratings. According to the results of both the Stanford-Binet and the Merrill-Palmer tests, the mental ratings of the well-adjusted group appear significantly higher than those of the other two groups. The differences between the "problem" group and the unselected group are only slight.

5. The groups are about equal in regard to the mean number of children per family and the number of "only" children which they contain.

6. The groups are about equal as regards the position of the child in the family. Certain differences are revealed, however, which, while they do not appear significant for the number of cases studied, indicate interesting trends. There is a larger proportion of oldest children among the socially unadjusted children and a larger proportion of youngest children among the well-adjusted children, than there are in the other groups.

7. The findings in regard to the child's relationships to his siblings cannot be considered significant because of the small number of cases for which data on this factor were available, and the relatively smaller degree of dependability of the original data, as compared with the more factual data thus far presented. An interesting trend, however, is revealed by the considerable proportion of children in the "problem" group, as compared with the other groups, who showed jealousy reactions toward one or more of their *younger* siblings. It seems possible that this factor may be related to their failure to adjust well in their social relationships to other children outside their own families.

8. No significant differences are apparent among the three groups in regard to national origin of fathers.

9. No significant differences are apparent for the three groups in regard to ages of parents, although the parents tend to be slightly older in the problem group than in the other groups.

10. Data on education of parents are available for only a limited number of cases, but indicate no marked differences among the groups.

11. Analysis of the data on occupations of fathers reveals one difference which appears to be significant. While the groups are about equal in their percentages for most occupational groupings, Group B, the well-adjusted group, contains a much greater percentage of fathers in the highest occupational class (professional men, business executives, etc.) than do the other two groups.

12 and 13. The three groups are, on the whole, about equal in regard to financial dependence, living quarters, and ratio of rooms to persons. The unselected group has a somewhat higher proportion of dependent families and families living in flats than do the two other groups.

14. What appear to be significant differences are found in regard to the "relationship of the father to the child." Data on such questions, however, are admittedly less dependable than more objective facts, such as are included in items 1 through 13. The children of the well-adjusted group have no fathers who are reported to show a "negative" attitude toward their chileren and have a higher percentage of fathers who show "positive" interest in their children; Group B appears to differ significantly from both the other groups as regards the former attitude, and from the problem group as regards the latter. The problem group had a larger proportion of fathers who were "absent or dead" and of fathers who were "present, but seldom sees child," than do the other two groups, although these differences do not appear to be statistically significant.

15. The difference between the "problem" group and the other two groups appears to be significant in "agreement between parents in regard to child training," there being fewer parents in Group A who "agree" and a significantly larger percentage of parents who "disagree." The well-adjusted group, on the other hand, have more parents who agree and fewer who disagree than do either of the other groups.

16. No statistical analysis was attempted for the data on "marital relationships of the parents," because the accuracy and dependability of the data are obviously open to question. It is interesting to note, however, that the well-adjusted children have the largest percentage of parents who are reported to be "congenial," and that the "problem" group has the largest number of parents who have been separated or are divorced.

17 and 18. The differences among the groups in regard to the "child's previous opportunities for play with other children" and the "age at which the child entered a nursery school, kindergarten, or other organized play group" do not appear to be significant.

19. Analysis of personality and behavior problems other than those of the child's social relationships to other children, reveals some differences among the groups. All problems tend to be more frequent among the children of the "problem" group than among those of the other groups, and the well-adjusted group has a lower frequency of most problems than do the other two. These findings may be weighted, however, by the larger proportion of nursery-school cases included in the well-adjusted group, as compared with the other groups.

The problems that are particularly frequent in the "problem" group and for which the differences, as compared with the well-adjusted group, appear to be significant are those of "negativism" (or stubbornness) and "enuresis." There is, furthermore, a significantly larger percentage of "overdependence on adults" in the "problem" group, as compared with both of the other groups.

Analysis of the problems when classified into larger groupings emphasizes the greater frequency of most problems in the "problem" group and reveals conduct and discipline problems, day-

dreaming and unresponsiveness, and apparent mental retardation as particularly predominant in this group, as compared with the other groups. On the other hand, this group is found conspicuously lower than groups B and C in number of instances of finger-sucking, nail-biting, masturbation, and other such undesirable habits. The well-adjusted group exceeds both the others somewhat in problems of school placement.

20. The second and minor objective of this study—to see whether socially unadjusted children fall into rather natural subgroups, such as "ascendant" and "submissive" types, and whether such types appear to be related to the other possible factors included in this investigation—was only an exploratory procedure and was not expected to yield any conclusive results. It would not appear that these types can always be easily differentiated at the preschool level. Of the 100 cases in the "problem" group, 38 seemed classifiable as "ascendant" types and 36 as "submissive" types, but 26 cases were so varied in their social behavior that they could not be classified as either.

Furthermore, for the most part, these "types" do not appear to be related to the other possible factors studied. Data on these subgroups were not analyzed by statistical techniques because, in most instances, the number of cases in the subgroups is very small. In regard to only two of the nineteen factors—sex and age—are any marked trends indicated. Slight trends seem apparent in regard to the place of the child in the family and his relationship to his siblings, and there are suggestions of some interesting trends in the relationship between these "types" and personality and behavior problems other than those of the child's social relationships.

CASE SUMMARY ILLUSTRATING SOCIAL MALADJUSTMENT

The following case history of a socially unadjusted child illustrates some of the factors discussed in the preceding pages as they appear in relation to social maladjustment in the case of an individual child:

Charles was the eldest of three children; the two elder were boys and the youngest a girl. Both parents were born in America. They were wealthy and owned a large home on one of the fashionable boulevards of the city. The

household consisted of Charles' parents, the three children, and four servants. There was a playroom generously equipped with toys, and well-chosen play apparatus was provided for the children. Charles and the younger brother were under the supervision of a governess.

Charles at the age of six years was referred to the Preschool Clinic of the Institute by his mother because the principal of the private school which Charles attended felt that his behavior presented such serious problems that the school could not allow him to continue there. In the course of a very careful investigation of the case, including frequent observations of the child in various situations and long conferences with the mother and others who had supervision of Charles, it was found that Charles presented many serious personality and behavior difficulties.

Charles' outstanding problem was his attitude toward other children. In general, he took a very aggressive and belligerent attitude toward them and was much disliked. In several successive private schools, beginning with the kindergarten which he had entered at the age of four, he was a social problem. At school he was observed to pinch and fight the other children, without apparent cause. On several occasions he was observed by the Institute worker to go up to another boy and deliberately hurt him, without any provocation on the latter's part. On one occasion he threw broken milk bottles at the other children; on another, he punched a boy in the face, and another time pushed a boy backward down a stairway. This antisocial behavior was quite generally observed at school and in an organized play group of which Charles was a member. When the question of sending him to a camp was under discussion, a teacher who had observed his behavior with other children felt that it would be dangerous for the other children to have Charles at camp unless he was under supervision "every minute."

His mother refused to acknowledge his inability to get on with other children and commented on his kindly and affectionate treatment of his younger brother and sister. The governess who had charge of Charles, however, found his behavior in the family group terribly difficult, and reported frequent incidents in which Charles gave vent to extreme jealousy of the younger brother.

Because of his belligerent behavior, other children were forbidden to play with Charles; parents and nurses in the neighborhood would not take the responsibility of letting Charles play with their children. He was considered "the bad boy" of the neighborhood, and was generally shunned by the other children. From all reports, it was obvious that Charles did not know how to work or to play with other children.

In addition to these problems of social adjustment, Charles presented other serious difficulties both at home and at school. He was very destructive, extremely distractible, unable to concentrate, and showed constant restlessness. He was stubborn and extremely disobedient. He appeared to have no self-control nor would he accept the discipline of others. In addition to these behavior problems which were very evident in his school and play life, his teachers found that he did not follow directions, took no interest in school work, would not attempt to learn, was irresponsible and indifferent to all class rules and regulations.

At the Institute an intensive personality study of Charles was made; his environment and background were analyzed in detail. A medical examination indicated that Charles was in good physical condition. On a Stanford-Binet intelligence test, he rated as having very superior intelligence. The test results indicated an intelligence quotient of 126 despite the fact that he was highly distractible and showed a marked tendency to disregard requests throughout the test period.

Charles' father, who was in his forties when Charles was born, was a graduate of an eastern university. He was a successful lawyer and had made a great deal of money. He was deeply interested in his business and it kept him very much occupied. He was frequently away on trips. He saw very little of his children and rarely spent any time with Charles. He and the mother had many social engagements, and he spent most of his leisure hours playing golf.

The mother was many years younger than her husband. She attended a woman's college in the east for several years but did not graduate. She was very fond of society and entertained a great deal. As a result she was very busy with her social activities and spent very little time with Charles.

The mother and father had very different ideas in regard to bringing up children. The father was stern and believed in strict obedience, while the mother was extremely lax about discipline and gave in to the children easily and frequently. The father would have preferred to send Charles to a public school, but the mother insisted upon sending him to a fashionable, private school. There was frequent and rather marked disagreement between the parents in regard to methods of handling Charles.

It is interesting to find, if one analyzes the outstanding facts of this case, that some of the factors which this present study reveals as related to the social adjustment of a young child are apparent; others, however, do not appear to exist in this case. It will be remembered that the four outstanding factors which appear to be related to the social adjustment of a young child are the intelligence of the child, the occupation of the father, the relationship of the father to the child and his attitudes toward the child, and the agreement of the parents in regard to child training. Intelligence tests indicate that this child has a high level of intelligence, as measured by tests, rather than the low level which, from our data, appears to be more characteristic of socially maladjusted

children. Also, the father is in the highest occupational group, which is the one in which the children tend to be socially *well* adjusted, according to our data. The father's relationship to the child, however, is not a close one; he is not often with the child and does not take a very active interest in the child's life. It is also obvious that there is great disagreement between the parents in regard to child training.

When one considers other factors, which do not appear to be *significantly* related to social adjustment from the data of the present study, but in regard to which interesting trends seem indicated, this case also reveals the presence of some such factors. The oldest child of the family has been found to present problems of social adjustment more frequently than do children of different position in the family, and this child is an oldest child. His relationship to his siblings suggests jealousy of the next younger child. The unhappy marital relationship, which appears, from our data, to be associated with the social maladjustment of a young child, is not found in this case; the parents appear to be a happy couple. The frequency of other behavior problems, which was found to be characteristic of socially unadjusted children, is obvious in this case; Charles presented many other problems in addition to his relationships to other children. The negativism or stubbornness which appeared to occur frequently in socially maladjusted children is present in Charles; the enuresis and overdependence on adults, however, do not appear in his case.

If this type of case analysis were extended to many other cases of socially maladjusted children, the results would probably be similar to those found in the case of Charles. In very few instances, if any, would *every* factor, which in this study appears to be related to social unadjustment, be found. Nor is it likely that only a single, outstanding factor would appear to be the cause of the child's failure to adjust socially. In most instances, as in the case of Charles, it is probably the combination of several important factors and various factors of minor importance, which form the causal basis on which the problems of social adjustment develop.

G. DISCUSSION, INTERPRETATION, AND CONCLUSIONS

In the findings of this study, the only factors (of the nineteen items studied) which appear to be significantly related to the social adjustment of a young child are the intelligence of the child, the occupation of the father, the relationship of the father to the child and his attitudes toward the child, and the agreement of the parents in regard to child training. Interesting trends indicate possible relationships between the child's social adjustment and the ordinal position of the child in the family, his relationships to his siblings, the marital relationship of the parents, and the behavior and personality problems (other than those of social relationships to other children) which the child presents.

Some of these positive findings, and also some of the negative ones (that is, instances where no relationships between certain items are apparent), are of special interest in relationship to the findings of other investigators cited in the introduction to this study.

RELATIONSHIP OF INTELLIGENCE TO SOCIAL ADJUSTMENT

Among the groups included in this study, there appear to be significant differences in regard to test-intelligence. The ratings of the well-adjusted group appear to be significantly higher than those of the other two groups. In considering these findings, the question naturally arises as to whether any selective factors were present in Group B which so weighted this group as to account for the differences that were found between it and the other groups. The only selective factor which the author has been able to find is that Group B contained a larger proportion of nursery-school children than groups A or C. Especially is this true of the number of children referred by the Franklin and Winnetka Nursery schools, 46 per cent of the children in Group B coming from these schools, as compared with 27 per cent in groups A and C, respectively. As is indicated in Study Three (p. 278 of this volume), the children from these two nursery schools show a higher mean IQ than do those of the clinic group. The mean IQ based on Stanford-Binet tests for a group of 79 children in Franklin and Winnetka Nursery

schools was 120.6, while the mean IQ for a group of 107 clinic children was only 105.7.

Since Group B contains only 19 per cent more of these Franklin and Winnetka nursery-school children than groups A and C, however, the difference in mean IQ's found in this study between groups A and B could probably be only partially accounted for by the weight of this factor. Furthermore, it is impossible to tell whether the greater proportion of children from these two nursery schools found in Group B, as compared with groups A and C, is due to some unrecognized factor or whether it is because there actually were more socially well-adjusted children in these schools in which the children represent higher levels of intelligence than do the clinic cases. In the latter case, it is possible that Group B's large proportion of children from these schools is not a selective factor which weights the data, but rather that it is a legitimate product of the basis on which groups A, B, and C were selected, and may indicate a relationship between intelligence as measured by tests and good social adjustment.

Although one cannot give a definite answer in regard to the significance of the factor discussed in the preceding paragraph, the fact remains that the results of this study indicate that the socially well-adjusted children were, on the whole, considerably more intelligent, according to the results of Stanford-Binet and Merrill-Palmer tests, than the children in Group A, representing children who had made a poor social adjustment to other children.

The question of whether or not the bright child does show greater ease in social adjustment than the dull child is a very interesting one. Various investigations relative to it have already been described in some detail in the introduction to this study. Berne (10) found mental age related to a number of social traits, such as participation, criticism, co-operation, and responsibility for others. Barker (7) found a small positive relationship between mental age and the number of social contacts which a child makes in a nursery-school situation. Hubbard (24) found that intellectual maturity appears to be a factor both in the time a child spends in social situations and in the selection of the group with which he plays.

Hollingworth (23), on the other hand, has pointed out that the very gifted child (by this she means a child with an IQ of 130 or above) is apt to encounter many difficulties in his social adjustments because, bored by the play of children of his own chronological age but rejected by children of his own mental age because of his physical and emotional immaturity, such a child is oftener thrown back upon himself and into solitary play. After babyhood, Hollingworth feels, the younger the child the greater the difficulties. She finds that adjustment becomes easier with every additional year of age, and that the years between four and nine are probably the most likely to be beset with such problems.

There were 30 children with IQ's of 130 or above in this study, 8 (12 per cent) of whom were in the problem group, 13 (32 per cent) in the well-adjusted group, and 9 (14 per cent) in the unselected group.[18] According to these findings, therefore, a greater proportion of children with IQ's of 130 and over are found in the well-adjusted group than in the unadjusted. The findings of this study, therefore, do not support Hollingworth's viewpoint, but there are, of course, instances of unadjusted children among those with high IQ's.

The following case illustrations are selected from those 30 children:

Margaret, one of the children who scored highest in the Stanford-Binet test (IQ 163), has always shown considerable ease in her social adjustments. Even when she first entered a nursery school at the age of 21 months, she made a good adjustment to other children. At the age of five, when she was in a group of children in school who were chronologically older than she was, she felt absolutely at ease with them and took a certain leading rôle in arranging games.

Susanne, another example of a child with a very high IQ (164), has always been exceedingly social and has been very eager to have the company of other children ever since she learned to walk. She "always got along beauti-

[18] It is possible that these IQ's are not as high as they appear to be. In Study Three, which follows, the results indicate that the Stanford-Binet tends to be too easy for children at the preschool age levels, and many psychologists have found that young children whose early tests yielded very high IQ's are likely not to rate so high on later tests. If these children are really only moderately high in IQ, their good social adjustment may support Hollingworth's conclusion that "the leader is likely to be more intelligent, *but not too much more intelligent*, than the average of the group led" (23, p. 131).

fully" with them and has been a leader among the children. When she was six and a half years old she showed the same characteristics as did Margaret, assuming an "executive" position among the children. She was well liked by them, even though she was clever in making arrangements that were to her own advantage.

In the case of Marian, however, the child who in this study scored highest on the Merrill-Palmer test and whose case is described in detail in chapter iii of this volume, the social adjustment was a rather difficult one. Attending a play school where the children were chronologically of the same age but mentally her inferiors, Marian seemed bored by their play activities and much preferred the companionship of adults to that of the other children. Such individual variations of social adjustment are to be expected, however, since any study of group tendencies reveals only what is most characteristic of the group as a whole, and does not indicate the type of behavior which may be found in individual cases within that group.

Ackerson (1), in studying the incidence of popularity and unpopularity in relation to IQ levels, found:

Among the younger children (ages 5–12), especially the girls, the incidence of popularity and unpopularity increased with IQ level. Now it may be that the regression of IQ on the trait *popularity-unpopularity* is curvilinear, i.e., children with relatively higher IQ's show a greater tendency toward either marked popularity or marked unpopularity in comparison with children of lower IQ who may manifest this trait in a more indifferent degree.

Although "popularity" cannot be considered synonymous with "socially well adjusted to other children," certainly the socially well-adjusted child is likely to be the popular one, and vice versa. The same is true of the "unpopular" and the "socially unadjusted" child. Ackerson's results and those of the present study are not comparable, however, in that his figures are based on children five years old and over, and include very few cases with IQ's of above 120.

There is one phase of the relationship between good social adjustment and intelligence which does not seem to have been discussed by any writers on this question, and which seems especially important in regard to children of preschool age—namely, *in how far does the child score high on intelligence tests because, being a socially well-adjusted child, he adjusts well to the test situation itself?*

A child's social adjustment to the test situation (every such situation is "social" in that it involves a relationship to the psychologist) is probably a factor in all individual psychological examinations, but it is perhaps more likely to affect the test results when the subject is of preschool age than when he is older. From various studies it appears that younger children tend to refuse tests more frequently than do older children and that chronological age level is a factor in the varying amount of resistance evidenced. Furthermore, since a variation in mental age affects the intelligence quotient in inverse ratio to the chronological age, any factor which affects the test results will cause a variation in the intelligence quotient that is larger for a younger than for an older child.

Although the experimental work that has been done on this problem is rather limited, every psychologist who has tested preschool children is conscious of the importance of securing the child's co-operation in "playing the games" which constitute the test, and the difficulty of evaluating a child's real capacities if he is either excessively shy or "resistant" and "negativistic" during all or part of the test situation.

Several investigators have studied resistance in young children; Nelson (30) and Rust (33) have studied this reaction in relation to intelligence test scores of preschool children. They agree in finding a tendency for children above the mean of the general resistance score to have lower intelligence quotients than children below the mean of the general resistance score, and in both studies a negative relationship between intelligence quotient and resistance was found. The question naturally arises as to whether the children who tend to be especially resistant are so because of lower intelligence, or whether their resistance in the test situation is a factor which tends to lower their test scores.

The findings of Nelson and Rust are of interest on this question. Rust found that, although 31 per cent of the group studied showed no change in Kuhlmann-Binet intelligence quotient as a result of resistance, there were rises of from 25 to 35 points for 7 per cent of the children, from 15 to 24 points for 18 per cent, from 5 to 14 points for 26 per cent, and from 1 to 4 points for 14 per cent in the intelligence quotients of the resistant children who finally accepted every test. Since the Merrill-Palmer test was much more acceptable than the Kuhlmann-Binet, the results of resistance were found to be less marked. Seventy per cent of the group showed no

change as a result of resistance, but 3 per cent gained from 5 to 14 points, and 25 per cent gained less than 5 points in Merrill-Palmer intelligence quotients from first to final presentation of the refused tests. Rust found that more than half of the Kuhlmann-Binet tests, and approximately three-quarters of the Merrill-Palmer tests refused by the children were later passed. Rust's conclusion is that about half of the tests refused by young children on initial presentation *can* be passed, and that the number passed increases with additional presentations of refused tests.

Nelson concluded that the intelligence quotients of 80 per cent of her group were not affected by resistance (Kuhlmann-Binet Scale), and that for the remaining 20 per cent the maximum amount could not be more than 4–20 intelligence quotient points. It seems probable that the difference in the findings of these two investigators on this point is due to the fact that in Nelson's study a refused test was presented only four times, if not accepted sooner, whereas in Rust's study a refused test was presented from 8 to 11 times, if not accepted sooner.

Although the findings of Rust and Nelson apply specifically only to results obtained under the experimental procedure used in those two studies (and it must be remembered that Rust's group had a mean Kuhlmann-Binet IQ of 132.75, whereas Nelson's had a mean IQ of only 107.6 on the same test), the implications of their results have a direct bearing on this present study. In view of their findings, even though the results herein reported reveal a positive, significant relationship between social adjustment and intelligence according to tests, one is not justified in assuming that the child with a high test score is socially well adjusted *because he is intelligent*. The findings of these other investigators suggest the possibility that at least in some individual instances children fail to achieve high test scores because they are socially unadjusted to the test situation.

RELATIONSHIP OF CHRONOLOGICAL AGE TO SOCIAL ADJUSTMENT

Although the mean chronological age of the "problem" group was slightly higher than that of the well-adjusted group, the

difference was not found to be a *significant* one. Chronological age, therefore, does not appear from our data to be a significant factor in social adjustment for the groups studied and within the age range included. To some investigators it might have seemed desirable, perhaps, to match the three groups of this study in regard to chronological age. It is not possible, however, to match groups of cases for all the possible factors that may be related to the one which is the special subject of a study, and the limited number of cases available for the well-adjusted group made it practically impossible to match the groups of this study for chronological age. Nor did it seem necessary in view of the fact that the cases of all three groups fell within the age limits of two and seven years—a total age range of only five years. The only exceptions were three cases which fell just outside this range.

Definite relationships of chronological age or developmental level to patterns of social behavior have been found by Gesell, Bühler, and others in the studies referred to earlier (see section A of this study). It must be remembered, however, that this present study is not of successive stages as they occur in the general development of social behavior; it is rather a study of types of social behavior in which, as Charlotte Bühler has pointed out, one may expect to find marked individual differences among children of any age or developmental level. It is a study of the *problems of social behavior* versus *satisfactory behavior, as reported by adults;* one may expect either type of behavior to occur at any age level.

The fact that it is "problem" or "satisfactory" social behavior as reported by adults may be the reason for such difference of chronological age as was found between the groups of this study. The "problem" group is found to be slightly older than the other two groups, 3.7 months older than the well-adjusted and 4.4 months older than the unselected group. The probabilities are that the difficulties of social adjustment presented by a very young child would not usually be considered sufficiently serious to be called "problems" by the adults in charge of him. One would, therefore, expect the "problem" group not to include many children under thirty months of age, and to have a mean chronological age slightly higher than that of the other two groups.

Cases in the upper age levels of this study are not found to be limited to the "problem" group, however; although the well-adjusted group includes no children over six years of age, the unselected group reaches the eighty-four-month level (see Table XIII).

The question may be raised as to what might be the possible effects of even this slightly higher mean chronological age of the "problem" group on the other findings of this study, and it may be well, here, to consider these various items, one by one. It does not seem likely that the slightly higher chronological age of Group A, as compared with groups B and C, would affect the findings of this study in regard to: *sex, physical condition, the child's relationships to his siblings, the national origin of fathers, ages of parents, education of parents, occupation of fathers, financial dependence and living conditions, agreement between parents in regard to child training,* or *marital relationships of parents.* The chronological age differences between the groups were too small to have affected the findings in regard to *number of children per family* and *position of child in family,* or to make much difference in the *child's previous opportunities to play with other children.*

Theoretically, differences in chronological age should not affect intelligence quotients nor scores in terms of standard deviation, but actually—because most tests are not perfectly standardized, especially at these lower age levels—they might affect such findings. The slight differences among the groups in regard to *chronological age,* however, apparently did not affect these findings in this study. The only apparently significant difference in chronological age was between the "problem" group and the "unselected" group; the differences between the "problem" group and the "well-adjusted" group, and between the "well-adjusted" group and the "unselected" group, did not appear significant. The reverse was true in regard to differences in intelligence, as measured by tests, however. The difference between the "problem" group and the "unselected" group appeared not to be significant for either the Stanford-Binet or Merrill-Palmer scales, whereas apparently significant differences were found between the "problem"

group and the "well-adjusted" group, and between the "well-adjusted" group and the "unselected" group.

Chronological age might perhaps influence findings in regard to the *relationship of the father to the child* and the frequency of certain specific *behavior problems,* such as those listed in Table XXXII. It is a common observation that the father's interest in and companionship with the child increases as the youngster passes from infancy to stages of development where his father can be more of a playfellow. On this basis it might be expected that the attitude of the fathers would be slightly better for the "problem" group, since they are slightly older. The reverse is true, according to our findings, as a better attitude of father toward child is found for the well-adjusted group, which is the younger one. Chronological age, therefore, does not appear to have been a determining factor in regard to these findings. In fact, it seems reasonable to assume that, had the groups been exactly equal in age, a still greater difference in favor of the well-adjusted group would have been found in regard to paternal attitudes.

The greater frequency of "negativism," "enuresis," and "overdependence on adults," as found in the "problem" group, are also the reverse of what one would expect in an older age group. The differences found between the groups in regard to these factors, therefore, are probably even greater than our results indicate, since they are found in spite of the slightly higher chronological age of the "problem" group.

In summarizing, one might say that the slightly higher chronological age of the "problem" group in this study may possibly have had some effect upon the other findings, but it does not seem likely that the findings would have been radically different had the groups been equal in age. On the contrary, from the foregoing analysis it seems likely that had the groups been equal in age, the differences found between them would only have been greater.

OTHER FACTORS

If one considers *occupation of father* an index of socio-economic status, from this study it would appear that his socio-economic background is a significant factor in a child's social adjustment

only if his family belong to the highest level. The probabilities are that all of these environmental factors which appear to be related to a child's social adjustment are somewhat interrelated. Is it not likely that the father who belongs to the professional and business executive group is also the father who has "positive" attitudes toward, and relationships to, his child? Would it not seem likely, also, that such a father would agree (or would at least be wise enough not to show disagreement) with the mother in matters of child training?

It is extremely interesting to find that the relationship of the *father* to the child and his attitudes toward the child appear to be significant factors in the child's social adjustment to children outside of his own family. Because young children are so largely cared for by their mothers, the rôle of their fathers is apt to be minimized or even ignored in considering the behavior and personality reactions of the children. These findings, indicating that the father's relationships and attitudes are significant factors in the child's adjustment to other children, are especially impressive in view of the fact that so few of the nineteen possible factors studied do appear to be significant in relation to this phase of social adjustment.

The tendency toward greater frequency of "oldest" children in the "problem" group is in agreement with the findings of other investigators; the fact that "only" children do not appear in the "problem" group with greater frequency than in the other two groups is of especial interest because of the contradictory findings on this point that have been reported thus far in the literature.

While the findings of this study do not appear to support Alfred Adler's insistence upon physical condition as one of the principal factors in the individual's social maladjustment, it must be remembered that in this study the data represent *general* physical condition whereas Alfred Adler refers rather to *specific organic defects*. Also, as indicated earlier, the data on physical condition in this study do not have a high degree of reliability; examinations were made by a variety of physicians and their results were not based on uniform standards that had been defined and accepted by all. It is, of course, possible that the slight trend toward a poorer general physical condition found in the "problem" group might be greater if more precise methods of examination were used.

CONCLUSIONS

The social adjustment of a young child to other children outside of his own family does not appear to be so conspicuously related to any other single factor in the child's own make-up or environment that the one can be said to be the "cause" of the other. What this study does indicate is that there are a *group of factors* which appear to be related to the child's social adjustment. To illustrate—the mere fact that a child is intelligent will probably not mean that his adjustment to other children will be good. If he possesses high intelligence, however, and *also* has a father who is in a profession, spends considerable time with him, and has constructive attitudes toward him, then the chances that the child will make good social adjustments are increased. If, furthermore, he is the middle child of his family and has parents whose marital relationship is a happy one, then his chances of good adjustment are still greater.

Such groupings of factors are sometimes called "constellations," and this concept is coming to play an increasingly important rôle in psychological explanations of behavior and personality. Recent studies in this field tend more and more to support the viewpoint that any particular manifestation of behavior or personality is not the result of any single factor in the make-up, environment, or experience of an individual, but is rather the result of a "constellation" of such factors which, in combination with each other, tend to produce the observed result. There is in modern sciences a growing recognition of the fact that a combination of elements or of factors is not merely the sum of the individual parts which enter into the combination; for each element is affected by the others with which it is combined. Such terms as "integration" or "Gestalt" are used, for instance, to describe the unity of elements which are biologically or inherently fused. While factors such as those analyzed in this study do not have an essential biological unity, they may nevertheless have a unity by virtue of the fact that they are related as parts of a total situation, and it is the

"total situation" rather than any single factor which determines the results when factors are combined. Lewin, in his application of the principles of Gestalt psychology to child psychology, uses the term "field forces" to represent the forces in the child's environment which function as factors in determining his behavior. He points out that particular features of the environment are usually less important than its *total character* in determining its effect on the child's development.[19] "Constellation" expresses a similar concept in that it implies a grouping of factors which take on a unity and thereby modify each other as parts of a total situation.

From this study it appears that whether a young child is socially well adjusted or presents problems of social adjustments will depend upon a "constellation" consisting of various factors in his own make-up and his life-situation. Outstanding among these are the intelligence of the child, the occupation of his father, the relationship of the father to the child, and the agreement of the parents in regard to the child's training.

APPENDIX TO STUDY TWO

The statements in the following table are *verbatim* excerpts from the records of children who are included in this study. They furnished the bases on which cases were classified in groups A and B. After the cases had been grouped into socially "adjusted" and "unadjusted" children, an actual count was made of the statements which each child's record contained regarding his social adjustment. The method used was as follows:

Statements that were considered very similar were grouped into one paragraph. The reports of social behavior were thus differentiated into 18 types of "poor social adjustment" (included in Section I of the above Appendix); 11 types of "neither poor nor good social adjustment" (included in Section II); and 12 types of "good social adjustment" (included in Section III). The figures to the right of each paragraph represent the number of cases of groups A and B in which the type of behavior included in that paragraph was reported. Since each paragraph presumably represents a uniform "type" of behavior, a case was counted only

[19] Kurt Lewin, *Environmental Forces in Child Behavior and Development, A Handbook of Child Psychology* (Clark University Press, 1931), pp. 94–127.

	No. of Cases		
	A Problem Group		B Well-adjusted Group
	Cases	Sub-groups*	
I. STATEMENTS INDICATING POOR SOCIAL ADJUSTMENT			
Frequently or Usually: "Does not get on well with other children"; "has not adjusted very well to the group"; "is not very happy in school" (in relation to children); "socially inadequate" or "frequently gets into difficulties with other children"†	35	16 a 10 s 9 u	1
"Unfriendly"; "does not like other children"; "withdraws from advances made by others"; "drives others away" or "repels" (indicating active unfriendliness)	11	3 a 2 s 6 u	0
"Domineering," "bossy," "aggressive," "self-assertive." "Does not co-operate with others"; "lacking in sense of fair play"; "rides rough shod over others"; "insensitive to their feelings," "disturbs their play," or "wants his own way"	30	22 a 0 s 8 u	0
"Selfish in regard to possessions," "takes, grabs others' toys"; "screams in order to get others to give him their toys," "breaks others' property," "is selfish with own toys"; "does not like to or refuses to share his toys"	43	27 a 3 s 13 u	2
"Teases, pushes, or annoys in petty disagreeable ways"	20	12 a 4 s 4 u	1
"Critical of others"; "wants things done his own way"; "dissatisfied with the way others do things," "fussy"	3	0 a 0 s 3 u	0
"Quarrels a great deal"; "fights, argues or is disagreeable"	14	10 a 1 s 3 u	0
"Hits, slaps, strikes others"; "kicks"; "throws things at them"; "scratches" or "bites"	37	28 a 0 s 9 u	0

* As in the preceding tables, "a" stands for "ascendant," "s" for "submissive," and "u" for "unclassified."

† Included in the first paragraphs of statements under sections 1, 2, or 3 on Table I are statements indicating a child's *general* social adequacy or inadequacy, whereas other groups of statements refer to more *specific* behavior.

APPENDIX—*Continued*

	No. of Cases		
	A Problem Group		B Well-adjusted Group
	Cases	Sub-groups*	
I. STATEMENTS INDICATING POOR SOCIAL ADJUSTMENT—*Continued*			
Frequently or Usually:			
"Displays temper, anger toward other children"	5	3 a, 1 s, 1 u	1
"Pushes or throws children out of chair, swing, or wagon so that he can use it"	3	3 a, 0 s, 0 u	0
"Children do not like him, do not like to play with him"; "are afraid of him"; "has no friends"	17	11 a, 0 s, 6 u	0
"Jealous of attention others get"	4	1 a, 0 s, 3 u	1
"Indifferent"; "unsociable," "stays aloof"; "not interested in children"; "ignores children"; "remains in corner," or "avoids others"	22	3 a, 14 s, 5 u	1
"Plays alone"; "does not or rarely joins group play"; "merely watches without effort to join"; "refuses to join when invited"; "solitariness"; or "prefers to play alone"	53	4 a, 31 s, 18 u	2
"Passive"; "unresponsive" or "lacking in initiative"	10	0 a, 9 s, 1 u	0
"Shy," "timid"; "fearful" or "self-conscious" with other children	25	0 a, 21 s, 4 u	1
"Does not stand up for his own rights"; "is abused, hit, annoyed by others"; "has his toys taken from him without protest"; "complies too easily	12	0 a, 11 s, 1 u	1
"Does not talk with other children"	8	0 a, 8 s, 0 u	0

APPENDIX—*Continued*

	No. of Cases		
	A Problem Group		B Well-adjusted Group
	Cases	Sub-groups*	
II. STATEMENTS INDICATING NEITHER POOR NOR GOOD SOCIAL ADJUSTMENT			
"Gets on fairly well with other children" or "has made neither a good nor a poor adjustment to the group"; "at times gets on with them nicely but not at other times" or contradictory reports of two informants	11	6 a, 2 s, 3 u	0
"Neither friendly nor unfriendly to children," "plays alone but would prefer to play with others"; "enjoys being with group although not actually participating" or "likes children but never seeks them out"	14	2 a, 8 s, 4 u	2
"Equally co-operative and unco-operative"; "somewhat domineering and bossy, but children like him and accept his leadership"	0	.....	4
"Equally selfish and unselfish"; "willing to ask for toy or share toy only after suggestion has been made"; "sometimes shares, sometimes not"; or "strong sense of property rights, resents interference"	8	4 a, 2 s, 2 u	5
"Teases, pushes, or annoys in playful manner"; "rough in play"	2	2 a, 0 s, 0 u	4
"Only occasionally quarrels, fights, or hits or bites"	1	0 a, 0 s, 1 u	5
"Follower in group" or "rather passive"	4	1 a, 2 s, 1 u	8
"Children merely accept him"; "ignore him" or "neither like nor dislike him"	9	1 a, 4 s, 4 u	2
"Plays neither exclusively alone nor freely with whole group"; "plays with one or two children but seldom with group"	9	1 a, 6 s, 2 u	3

APPENDIX—*Continued*

	No. of Cases		
	A Problem Group		B Well-adjusted Group
	Cases	Sub-groups*	
II. Statements Indicating Neither Poor nor Good Social Adjustment—*Continued*			
"Joins under certain circumstances but at other times refuses to enter group play"	6	o a 5 s 1 u	
"Talks only occasionally to other children"	8	o a 6 s 2 u	1
III. Statements Indicating Good Social Adjustment			
Usually: "Gets on well, plays well with other children"; "has made a good adjustment to the group"; "enjoys school" (in relation to other children), or "feels at ease in his social contacts"	1	o a o s 1 u	35
"Sociable," "friendly"; "likes other children"; "companionable"; "is fond of mingling with others"; "makes advances to others," "prefers to play with others"; "shows definite outgoing friendliness"; also includes "sociable at times and self-sufficient at other times"	16	14 a o s 2 u	43
"Co-operates, works, plays with others," "good sense of fair play," or "considerate and courteous"	o	.....	5
"Has good sense of property rights," "respects property rights of others"; "takes turns willingly," "is generous with own toys"; "willing to share"; "asks for toys"	o	.....	28
"Takes responsibility for others" or "shows motherly attitude," etc., "is helpful"	4	2 a o s 2 u	7
"Gentle and affectionate with children"	2	1 a 1 s o u	7

APPENDIX—*Continued*

	No. of Cases		
	A Problem Group		B Well-adjusted Group
	Cases	Sub-groups*	
III. Statements Indicating Good Social Adjustment—*Continued*			
Usually: "Children like him, respect him, choose him as partner"; or "child is always acceptable or favorite in group," "has friends"	3	2 a 1 s o u	26
"Joins, participates in group play, enjoys it," "wants to be with group" (statement referring to group activities)	8	5 a 1 s 2 u	11
"Leads" and "shows initiative"	1	1 a o s o u	14
"Leads or follows according to necessity of the play" or "leads some children and follows others"	2	1 a o s 1 u	2
"Stands up for his own rights"; "defends own rights"; "defends himself when his rights are encroached upon"	4	o a 3 s 1 a	18
"Talks freely with others; carries on conversation, laughs with them"	3	2 a 1 s o u	5

once for each paragraph, even though the record may have contained several of the various statements within that paragraph. A case may be counted again, however, in any number of different paragraphs. For example, a child who "does not get on well with other children" and who is also reported to be "socially inadequate" is counted only once; whereas, if he is also reported to be "selfish in regard to possessions" he is counted again for the paragraph which contains that statement.

Examination of the numbers of cases reported in the right-hand columns shows very clearly the predominance of behavior reactions commonly considered indicative of poor social adjustment in Group A, the "problem" group, whereas those reactions usually considered indicative of good social adjustment predominate in Group B, the well-adjusted group. Thus, actual count of the different types of social behavior reported in the records of these children supports the investigator's classification of the children into groups A and B. The proportion of socially unadjusted reactions reported for the children in Group A, as compared with the "well-adjusted" reports for that group, clearly establish them as the *problem* group; the proportion of socially "well-adjusted" reactions reported for the children in Group B, as compared with the reports of "unadjustment" for that group, establish them as the *well-adjusted* group; and both groups are fairly well represented in most items "indicating neither poor nor good social adjustment."

Actual count of statements also supports the divisions made of cases into "ascendant" and "submissive" types. The former showed more reactions, such as aggressiveness, selfishness in regard to possessions, quarreling, annoying, hitting, slapping and striking, and not being liked by other children, than did the "submissive" group. The "submissive" group, in turn, had more reports of indifferent, aloof behavior, playing alone, unresponsiveness, shyness, timidity, inability to stand up for one's own rights, refusing to talk with other children, and the like.

It is interesting to note that when the statements regarding social adjustments are analyzed into those contained in the records of Group A and those found in the records of Group B, neither group of children is found to be entirely "adjusted" nor entirely "unadjusted." This was pointed out earlier in the description of Group B under "Selection of Subjects and Method of Procedure." It is also true of Group A. Anyone familiar with the social activities of young children in real life-situations will probably agree with this; rarely does one find a child who is always poorly adjusted in every social situation, and even the well-adjusted child is not likely to present socially "perfect" behavior.

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CHAPTER VIII

STUDY THREE: ANALYSIS OF STANFORD-BINET AND MERRILL-PALMER TEST RESULTS FOR CHILDREN OF PRESCHOOL AGE[1]

A. THE SOURCES OF THE TEST DATA

Although some studies on mental tests for preschool children have been published, they are few in number as compared with the literature on tests of older children. Much more experimentation and research are needed in order that we may know how to evaluate adequately and to interpret results for very young children. This study deals with results obtained with the Stanford-Binet and Merrill-Palmer scales when given to children within the chronological-age range of twenty-two to seventy-nine months.

As stated earlier, the psychological work of the Preschool Department of the Institute for Juvenile Research was undertaken as part of a general service program for children of preschool age, rather than primarily as an experimental program in research on preschool tests. When the work of the Preschool Department was begun in 1926, therefore, the Stanford-Binet and Merrill-Palmer scales were selected as the first tests to be used because they seemed fairly well adapted to the needs of a service program. They have been used rather consistently up to the present time, without very much experimentation with other tests then existing or with new tests which have appeared from time to time, and this study deals with the questions of standardization and reliability of these two tests which have been most generally used in this service program. Other tests such as the Kuhlmann-

[1] Several members of the staff of the Preschool Department assisted the author in the preparation of this study. The data for sections D and F were assembled for statistical analyses by Margaret Hall; Marian Taylor Boyd and Adelaide Ames assisted in assembling and analyzing parts of the data for various other sections of the study.

Binet, the Gesell Developmental Schedule, and the Goodenough Drawing Test were experimented with briefly, but are not included in this report because they were given to only a small number of children.

The data gathered in a service program are not likely to make possible an exact and comprehensive research study in which the changes in one variable are analyzed while all other factors are held constant. The data presented here were gathered under conditions which did not make possible the control of certain factors which could be considered and controlled in an experimental project formulated primarily for research purposes. For example, in an adequately formulated research project, where all variables other than the one under investigation should be eliminated, the interval between all tests that a child is given—even tests of different scales—should be kept constant; the order in which different scales precede or follow each other should be controlled because it is possible that the order may influence test results; and tests should be given uniformly either by the same or by different individuals so that the influence of the examiner may be held constant, especially where the *constancy* of test results is to be studied. Definite answers to problems in the testing field cannot be known until such precision is introduced into experimental studies. Meanwhile, however, such data as are presented here may prove a suggestive addition to the limited literature as yet available on tests for children of preschool age, and the psychologists who are using mental tests for very young children may find the results of this study helpful in the interpretation and practical use of their test results.

In the years since the organization of the Preschool Department, a considerable body of test data has been gathered. Test results, as indicated in Part I of this volume, form only a part of each child's case record. The analysis which follows is based on the psychological test results found in the case records of the first 825 children examined by the staff of the Department. The sources of the first 635 cases and analyses of some of the characteristics of this group are reported in chapter v. The data of this present study also include 190 public-school kindergarten chil-

dren who live in a suburban area near Chicago. As a whole, this community is of higher than average socio-economic status, although its population includes a fairly wide socio-economic range.

Not all test results for all the 825 children are included in this study, as all test results which examiners had considered unreliable or incomplete, because of such reasons as very poor co-operation from the child or foreign language difficulty, were excluded from the analysis. The numbers of cases used in various parts of this study differ, because not all children received the same number or kinds of tests. A specific analysis of the sources of the subjects included is given separately in the sections on the Stanford-Binet and the Merrill-Palmer scales.

The number of tests given to a single child ranged from one to four Stanford-Binets, Merrill-Palmers, or both. The children in the nursery schools were given Stanford-Binet and Merrill-Palmer tests at some time during the school year, and in many cases at the beginning and again at the end of the school year. The children who came to the clinic received either a Merrill-Palmer or a Stanford-Binet test, or both, at their first clinic examination, and most of them received re-examinations from time to time.

Children of many different nationalities are included in all of these groups, and the clinic and nursery-school groups include a few Negro children. There are about an equal number of boys and girls in the total group.

The testing has all been done by trained psychologists, accustomed to handling young children. Ten psychologists have participated in the testing program since its beginning, but five of them have done more than 90 per cent of the testing. While, as indicated earlier, it would have been desirable, had it been possible, to have a controlled procedure in regard to changes of examiners, it seems probable that this was not a factor which had much effect on the results of this study. Studies that have been made relative to the effect of the examiner on test results, especially with reference to the effects on constancy, indicate that while variations are greater when different examiners participate than when all tests are administered by the same examiner, the effect is not likely to be an important one *if all examiners have had adequate training and experience* in techniques of testing (11, pp. 18–20; p. 37). Goodenough (14, p. 126) came to a similar conclusion in her analysis of results for the Kuhlmann-Binet. She felt that her data did not warrant wide generalization, but indicated that if the examiners are reasonably adept in handling small children and adhere carefully to constant procedures in administering and scoring the tests, variations in results are not necessarily greater in retests by different examiners than when made by the same examiner.

B. THE NORMS OF THE STANFORD-BINET SCALE AT PRESCHOOL AGE LEVELS

It was the purpose in this section of the study to analyze the results of first Stanford-Binet tests from the standpoint of their standardization on preschool age levels. Throughout this study "standardization" means the adequacy of the norms and does not refer to the concepts of reliability or validity. Terman's original standardization of the Stanford-Binet test included very few cases for the three- and four-year levels—10 cases at the three-year level, 17 at age four, and 54 at age five (3, p. 146). Although the Stanford-Binet Scale has been quite widely used for children of preschool age,[2] no restandardization of these early age levels, as based upon a larger number of cases, has been published.[3] Also, such studies as have been published giving the results of Stanford-Binet tests on preschool children have included only a small number of cases at each age level. It seemed a matter of special interest, therefore, to consider the adequacy of the age norms when applied to the cases of the Preschool Department of the Institute.

SUBJECTS

This analysis of Stanford-Binet results is based upon the first tests given to 482 children. The group ranged in chronological age from 37 months to 78 months. In this group there were 237

[2] Eliot (9) found in 1928 that the Stanford-Binet and Kuhlman-Binet were the two scales most generally used for preschool children, the Stanford-Binet being used at that time by fifteen organizations.

[3] Terman's revision of the Stanford-Binet Scale now under way will extend the test downward to the second-year level, but is not yet available.

boys and 245 girls, and at most age levels the sexes were fairly equal in number, as shown in Table I. In some cases this was the first test a child had ever received; in the majority of cases, however, Merrill-Palmer tests had preceded the Stanford-Binet. In cases where a child was given both kinds of tests, the Merrill-Palmer was practically always given first, both because it is the more interesting to the child and therefore more easily secures his co-operation and because it is more suitable to the younger age levels at which the first test was likely to be given.

As stated earlier in this volume, the work of the Preschool Department has included both nursery-school and clinic service. Test results on children from five nursery schools—the Mary Crane, the Winnetka, the Franklin, the Community, and the Garden Apartments—and on children examined at the clinics are included in this study.

The Mary Crane Nursery School at Hull-House draws children, for the most part, from homes of very low social and economic status, in many of which the parents are foreign-born. Test results on 89 of these children are included, and the mean Stanford-Binet IQ for this group is 101.9.[4]

In the Winnetka Public School Nursery the children come from well-to-do American homes of high economic and social status. Test results of 31 of these children are included and their mean IQ is 122.9.

In the Franklin Public School Nursery the children come from so-called middle-class homes, in some of which the parents are foreign-born. These children number 27 and their mean IQ is 117.6.

The Community Nursery School, which went out of existence shortly after the Preschool Department of the Institute was organized, was a small, private organization composed chiefly of children of high socio-economic status. Only 17 children of this school are included; their mean IQ is 111.5.

[4] Although no test results were included in which the examiner felt that language difficulty had seriously interfered with the reliability of the test, the children from these homes have undoubtedly been somewhat handicapped in the mastery of English (see Study One).

The Garden Apartments Nursery School for Negro children is part of a housing project for Negroes and was established for the service of the tenants. When this study was begun, this school had been open only a very short time so that very few test results were available and a mean IQ could not be reliably calculated, but the ten children tested had a mean IQ of 109.1.

The children who come to the clinics conducted by the Preschool Department live in all parts of Chicago and its suburbs and range from the lowest to the highest economic and social status. This group is constituted mainly of "normal" children with all types of behavior and personality problems, mild to serious. They range from retarded to extremely superior intelligence, very few of them being markedly subnormal in mental development. Stanford-Binet test results for 107 children of this clinic group are included and the mean IQ of the group is 105.7.

The data also include Stanford-Binet test results for 190 public-school kindergarten children who live in the village of Hinsdale (a suburban community near Chicago). The mean IQ of this kindergarten group as represented in this study is 108.6. Besides the nursery-school, the clinic, and the kindergarten children, Stanford-Binet test results for a small group of 11 children from miscellaneous sources are included. Since this was a heterogeneous group, no mean IQ was obtained for them.

The 482 children whose Stanford-Binet test results are presented in this study represent a group whose IQ's range from 55 to 163, with the mean, 108.4, considerably above 100. It is, of course, not possible to say definitely whether this comparatively high mean IQ is due to a possible superiority of the group as a whole or to the possible tendency (discussed later in this study) of the Stanford-Binet to rate children too high. It does not seem likely that the group as a whole was superior, since a great majority of the Mary Crane and many of the clinic children come from homes of very low socio-economic status (see chap. v).

FINDINGS

The distribution of IQ's is shown in the column diagram of Figure 1. Figure 2 is a correlation table for chronological and mental age.

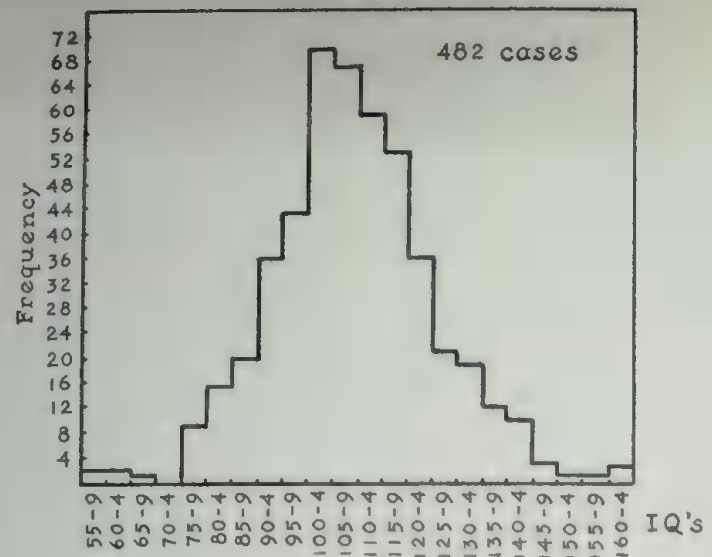

FIG. 1.—Distribution of IQ's on first tests

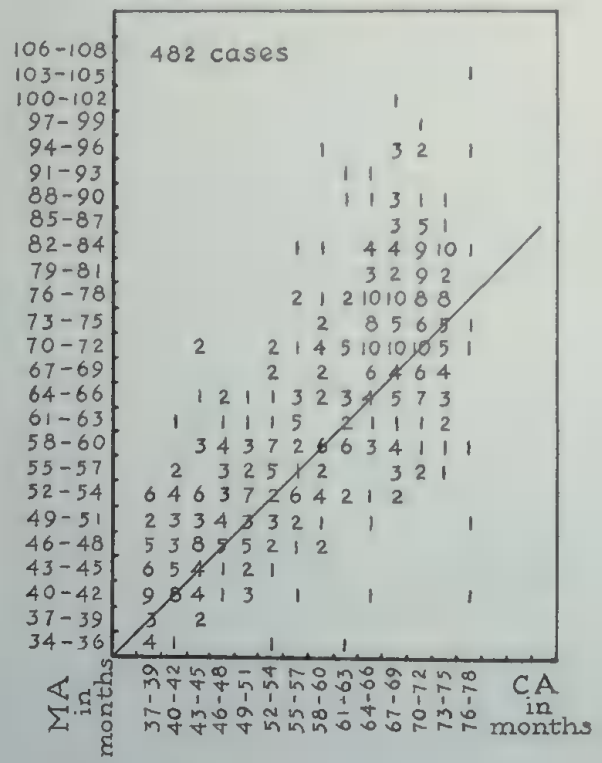

FIG. 2.—Correlation table for chronological and mental age on Stanford-Binet test results.

Three-month age groups.—The test data were first divided into chronological age groups of three months each. It was thought that a three-month interval was as large as should be allowed for children of this age. Growth at these early ages is very rapid and norms for intervals such as six months or one year, which might be sufficiently accurate for older children, might be very inaccurate for young children. For example, Stutsman (27, p. 121) in developing the Merrill-Palmer Scale found that it was possible to divide her

TABLE XXXIV

ANALYSIS OF FIRST STANFORD-BINET TESTS BY THREE-MONTH AGE LEVELS

Chronological Age Levels in Months	Mean Mental Age	Mean IQ	No. of Boys	No. of Girls	Total No. Cases
37–39	45.1	117.1	13	22	35
40–42	47.6	115.5	7	20	27
43–45	51.2	115.3	21	12	33
46–48	53.9	113.5	12	12	24
49–51	52.0	102.9	13	14	27
52–54	57.6	106.6	13	14	27
55–57	60.8	107.5	13	12	25
58–60	64.5	108.0	13	15	28
61–63	66.4	106.0	14	9	23
64–66	72.6	110.8	25	29	54
67–69	74.6	109.4	30	30	60
70–72	76.3	107.1	35	33	68
73–75	75.7	102.3	21	22	43
76–78	72.8	95.0	7	1	8
Total	.....	.....	237	245	482

six-month age groups into two groups of three months each and, in the case of many tests, to demonstrate a decided difference in the median scores of the two in favor of the older three-month group.

Dividing the data into these small intervals made the number of cases at each age level rather small. The mean mental ages and mean IQ's were calculated for each age group and are given in Table XXXIV. Because of the small number of cases at each level, standard deviations were not figured for these means. (They will be found in Table XXXV where larger age groupings are presented.) These mean mental ages are plotted against chronological age in Figure 3.

From this table and this figure it can be readily seen that mean mental age is considerably higher than the corresponding chronological age level throughout, except at the 49–51 month and 73–75 month levels, where it approximates chronological age. The drop below chronological age at the 76–78 month level is probably not reliable on account of the small number of cases at this level.

Terman (29, p. 62) had found the original Binet scale too easy at the lower end and commented on the fact that the Stanford

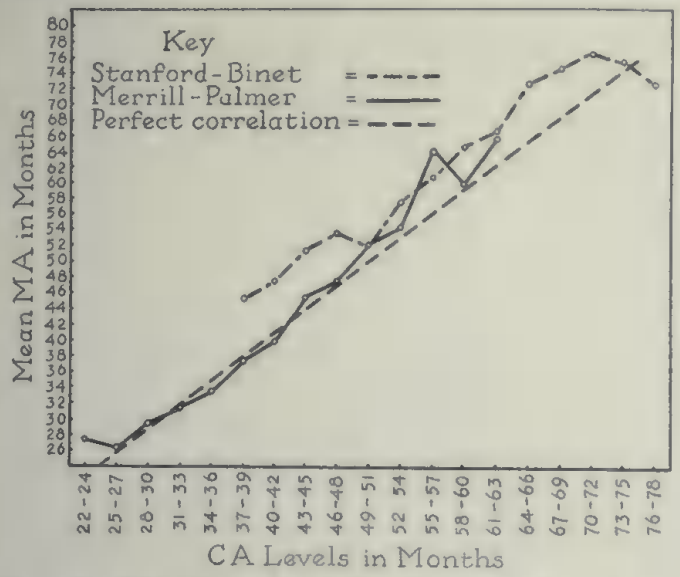

FIG. 3.—The relation of mental age to chronological age on Stanford-Binet and Merrill-Palmer tests.

revision causes young subjects to test lower than any other version of the Binet scale. His correction, however, does not appear to have lowered the results sufficiently.

Terman himself recognizes this possibility in his discussion of the results obtained in the Cuneo and Terman (8) study in which 112 kindergarten children ranging in age from 3 years and 7 months to 7 years were tested. The IQ's of these children were found to range from 61 to 152 with the median at 105. The authors comment to the effect that although the distribution closely

approximates the normal, the high median indicates either that the Stanford Revision is still somewhat too easy in the lower ranges or that the children tested were somewhat superior. In describing their group of subjects previously, however, they had considered them fairly representative as regards social status, as far as could be ascertained, and had commented on the fact that the large majority came from middle-class homes, while a few came from each extreme. The authors concluded, however, that their analyses of percentages of subjects passing each test at each age did not appear to warrant any radical changes in the location or scoring of the tests of the Stanford Revision at these age levels.

This tendency of the Stanford-Binet to rate children too high at these early age levels has been found by other psychologists who report mean IQ's even higher than those found in the present study.

Baldwin and Stecher (3, pp. 56–7) found an average IQ of 115.3 for 105 children whose chronological ages at this first examination ranged from 24 to 72 months. The children were all enrolled in preschool laboratories. The authors thought these children probably were of superior ability, on the whole, but believed that they were fairly comparable with other groups of American-born children of good parentage. Their average IQ was somewhat increased by the presence of 9 two-year-old children whose average IQ was 117.9. The authors considered the superiority of these two-year-olds due to a selective factor, in that children so young were not likely to be sent to a play group unless they were somewhat accelerated in development. The average IQ for 28 five-year-olds in their group, however, was found to be 119.8, and the authors offered no explanation for this high average.

Buford Johnson (22) found uniformly high intelligence quotients—about 114 and 115 IQ—for children ranging in age from 24 to 77 months and concluded, from her tests of these and older children, that a high IQ obtained at an early age will probably not remain constant. Woolley (38, p. 479) found that the Stanford-Binet test was too easy at the three- and four-year levels. Banham-Bridges (4) reports that most of the tests at the 3-, 4-, and 5-year levels are too easy, and the opinion of most psychologists working

in the preschool field is, as stated by Goodenough (15), that this scale is too easy at the preschool levels.

Wellman's (35) recent analysis of Kuhlmann and Stanford-Binet tests and retests includes results for a large number of children of preschool age. (The Baldwin and Stecher data referred to earlier are included.) Wellman's IQ curves for first tests, covering a chronological age range of from 2 to 14 years, reveals the five-year level as the high point—116.5 IQ. Her results, like those of the present study, show mean IQ's much above 100 at all the early age levels, but vary from those of the present study in indicating lower mean IQ's than ours for three-year-olds and higher mean IQ's for five-year-olds. Wellman[5] used age groups of one year range; an age group consists of children six months each side of

Age in Years	No. of Cases	Mean IQ	*S.D.*
2	93	115.1	15.0
3	172	111.2	16.3
4	150	108.2	16.0
5	176	110.5	16.9
6	180	113.1	14.4

the year so that the exact year forms the midpoint. Wellman's subjects of preschool age were all enrolled in the preschool laboratories of the Iowa Child Welfare Research Station. All IQ's were secured with the Stanford revision of the Binet Scale except that the Kuhlmann revision was used with most of the two-year-old group and about half of the three-year group. First tests were given shortly after the child's entrance to the preschool laboratory or the elementary school. The author reports a more or less continuous drop on first tests in mean IQ's from the five-year to the fourteen-year age levels, with a mean IQ at fourteen years of 93.8.

Six-month age groups.—In order to study the effect of larger groupings, the data of this present study were also divided into six-month age groups. The mean mental age and mean IQ with

[5] Her results for the preschool levels were as given in the accompanying table. These figures are not contained in the published article referred to above, but were sent to the author by Dr. Wellman.

their standard deviations were calculated for each age group, and these results are given in Table XXXV.

A general downward trend in mean IQ is apparent as chronological age increases from 3 years to 6½ years. Similar downward trends are not apparent within these age levels in the data of Baldwin and Stecher (3), Johnson (22), or Wellman (35), although they are found as C.A. increases still further. Stutsman (36, p. 52), however, found a decrease in mean Stanford-Binet IQ with increase in chronological age within these early levels in a study of Merrill-Palmer nursery-school and waiting-list children. She

TABLE XXXV

ANALYSIS OF FIRST STANFORD-BINET TESTS BY SIX-MONTH AGE LEVELS

C.A. in Months	Mean M.A.	*S.D.* of M.A.	$\frac{100\sigma}{M}$*	Mean IQ	*S.D.* of IQ	$\frac{100\sigma}{M}$*	No. of Cases
37–42	46.2	5.9	12.8	116.4	14.5	12.5	62
43–48	52.3	7.4	14.1	114.1	16.6	14.5	57
49–54	54.8	7.7	14.1	104.7	13.8	13.2	54
55–60	62.8	10.7	17.0	107.8	17.9	16.6	53
61–66	70.7	10.3	14.6	109.4	15.9	14.5	77
67–72	75.5	9.7	12.8	108.2	14.5	13.4	128
73–78	75.3	10.7	14.2	101.1	14.8	14.6	51
Total							482

* Coefficient of variation.

reports average IQ's that decrease gradually from 121 at 38 months C.A. to 118 at 50 months C.A. Stutsman[6] also found IQ's to decrease with increasing C.A. in a larger and less selective group—1,282 children obtained through outside contacts at the Merrill-Palmer school, through public schools, and through clinics. The median IQ of this group was 118 for the 38-month level and gradually fell to 103 at the 72-month level and 91 at the 86-month level.

It is difficult to account for the differences in the results of these various studies; in some, a more or less continuous downward trend in IQ is apparent from the earliest years, while in others the downward trend does not become marked until later. Practically

[6] This reference is to mimeographed data kindly sent to the author by Dr. Rachel Stutsman.

all investigators agree, however, in finding that the generally high levels of IQ for the preschool ages are not maintained in later years. The data of this present study do not include test results for children older than six and a half years. Our experience in later retesting children who had been studied by the Preschool Department of the Institute, however, is in accord with the findings of other authors on this point. This general tendency for IQ's to fall as chronological age increases is indicative of the faulty standardization of the Stanford-Binet test at these early age levels.

VARIABILITY

Data indicating the relation between variability and chronological age are presented in Table XXXV. The measures of variability are the standard deviations of mental age (in months) at 6-month levels. A tendency for the standard deviation of mental age to increase with increasing chronological age is apparent up to the 55–60-month level, after which it appears to remain constant, or perhaps to decrease slightly when the curve of mental age is considered. Coefficients of variation $\left(\frac{100\sigma}{M}\right)$ were calculated and are included in Table XXXV for those who are interested in this statistical measure as an index of variability.

Terman (29, p. 67) thought that, as far as intelligence is concerned, the Stanford Revision of the Binet Scale contradicted the traditional view that variability in mental traits becomes more marked during adolescence because he found the distribution of IQ's to be practically the same at each age from five to fourteen. (The data of Table XXXV of the present study, however, indicate that measures of variation of IQ and of M.A. are not comparable.) Studies of the constancy of variability do not appear to have yielded uniform results, and additional evidence on this point is needed. Freeman (12, pp. 275–80; pp. 349–57) is inclined to the view that variability of mental test scores is relatively constant for succeeding years, while Thurstone (32 and 33) has found, with Stanford-Binet data, that absolute variability of test intelligence increases noticeably with age until adult intelligence is attained.

No attempt is made here to review the many studies in which the relationship of variability to chronological age has been considered; the data they present appear to be quite conflicting as regards the constancy of variability; the measures of variability used by the different investigators vary and are often open to question. The problem of the relationship between variability and age is closely bound up with the question of constancy of the IQ and with the shape of the curve of mental development, and since the latter is still a controversial issue, more experimental proof will be necessary to settle beyond dispute the problem of the association of variability and age. It is especially difficult to produce conclusive proof from results of scales which have not been formulated by an absolute method of scaling.

SEX DIFFERENCES

As reported earlier, of the 428 subjects who were given Stanford-Binet tests, 237 were boys and 245 were girls, and the number of boys and girls at most of the age levels were fairly equal, as shown in Table XXXIV. Sex differences were not studied for the various age levels because of the small number of cases of each sex at each level, even when 6-month classifications were used. For the group as a whole, however, the mean IQ of the 237 boys on first tests was $107.1 \pm .68$. The range for boys was from 63 to 146 IQ, and the standard deviation was 15.5. For the 245 girls the mean IQ on first tests was $109.8 \pm .70$. The range for girls was from 55 to 163 IQ, and the standard deviation was 16.3. The *difference* between the mean IQ's of boys and girls was 2.7 and the *P.E. of the difference* was .98. This yields a *significance quotient* of 2.8. There does not, therefore, appear to be a significant difference between the sexes as regards mean IQ's on first tests.

Terman (29, p. 70) found that for the 1,000 unselected children on whose test results the Stanford Revision of the Binet Scale was based, there was a small but fairly constant superiority of IQ's for the girls up to the age of thirteen years. He concluded that this superiority was probably real even up to and including the age of fourteen. It was a very slight superiority, however, amounting at most ages to only 2–3 points IQ. The findings of the present

study indicate a similar difference between the sexes for the preschool age levels.

A similar superiority of the IQ for girls has been found by other investigators among preschool children. For example, Baldwin and Stecher (3, p. 57), in their study of 105 children from 24 to 72 months of age, found, with the Stanford-Binet, a mean IQ of 116.6 for 57 girls and a mean IQ of 113.1 for 48 boys.

Witty (37) reported some interesting findings regarding sex differences in Stanford-Binet results at the preschool level. He tested 132 boys and 126 girls whose chronological ages ranged from 3 to 5.11 years and whose IQ's ranged from 53 to 153. He found that the median IQ for girls was 114 and for boys 107, that 70 per cent of the girls reached or exceeded the median performance of the boys, and that girls made both the highest and lowest scores. When the sexes were assembled *according to the occupation of the parents*, however, Witty found no conspicuous differences between their median intelligence scores. In no occupational group did the difference between the sexes exceed 2 points IQ.

Goodenough (14) compared 50 boys and 50 girls on each of the age levels—2, 3, and 4 years—on the Kuhlmann-Binet Scale. She found girls superior to boys at every age. Sex differences are analyzed in further detail in her article on "The Consistency of Sex Differences in Mental Traits at Various Ages" (13). She found girls superior to boys on 11 out of 12 tests of immediate memory, on verbal tests, and a few others. Boys were consistently superior to girls on only three tests—imitation of movements, selecting the longer of two lines, and discriminating between right and left. On the *Wallin peg boards*, with the same group of children, boys exceeded girls at two and three years, and the girls were slightly in the lead at four years. In the article referred to, Goodenough (13, p. 444), reviewing the literature on sex differences, concluded that practically all investigators of this question have found a slight superiority of females over males in general linguistic ability. Since tests of a verbal and memory type predominate in the Stanford-Binet Scale, and since girls have been found to excel in these activities, the findings of the present study and others which report a higher mean IQ for girls than for boys are not surprising.

C. CONSTANCY OF THE STANFORD-BINET SCALE FOR CHILDREN OF PRESCHOOL AGE

FINDINGS OF OTHER INVESTIGATORS

Although there are still differences of opinion among psychologists regarding the question of the *constancy of the IQ*, the relative importance of the factors which affect it, and the possible methods by which the IQ may be modified, most of the studies that have been made agree in establishing a quite high reliability for the Stanford-Binet when used with school children. No attempt will be made here to review the vast amount of literature on this subject. Foran (10 and 11), in two successive reviews of the literature on the "Constancy of the Intelligence Quotient," summarizes the findings of a number of investigators and concludes that, despite the number of factors that contribute to unreliability, the IQ is found to remain remarkably constant. He points out that a high degree of approximation—not mathematical constancy—is all that has been claimed for the intelligence quotient, and that it does remain highly constant in spite of such factors as modifications of environment, training, interval between tests, errors in the use of tests, language handicap, and other factors that have been recognized as causes of changes in the IQ. This general tendency for the IQ to remain constant does not, of course, preclude large fluctuations in the individual cases, as Foran points out, and as every experienced psychologist knows.

In reading various studies by individual authors one finds that the correlations found for children *of school age* are usually between .84 and .95. Foran (11, p. 36) reports that the correlations found between successive Stanford-Binet tests vary between .80 and .95. He concludes that the probable error of a Stanford-Binet intelligence quotient is approximately five points under average conditions when all causes of variation are uncontrolled.

There has often been a tacit assumption that tests valid for certain groups and for certain ages would also be valid for other groups and other ages. On this assumption, as pointed out earlier, the present Stanford-Binet test has been used for preschool children, although in its original standardization only a very small number of children of preschool age were included. In any con-

sideration of *constancy*, a distinction should be made between that constancy which represents reliability of the test itself (i.e., when repeated after a short interval) and that which also represents uniformity in mental growth (i.e., as indicated by similarity of test results when test and retest are separated by longer intervals). Without due consideration of this distinction, it has been tacitly, and perhaps unfortunately, assumed that the high reliability established for this test with school children applies also to children of preschool age, and some psychologists have even ventured to predict from the IQ's of three-year-old children the intellectual levels which these children would achieve in adult life. Such data as are available make this appear an unwarranted assumption.

Foran (11, p. 37) found that constancy of the IQ is independent of age *but that very young children are an exception*, the largest deviations being observed in children below six years of age.

While Cuneo and Terman (8) found that the intelligence quotient is as constant in young children as in older ones, their findings are in disagreement with the data of almost all other investigators who have thus far reported results for children of preschool age. Cuneo and Terman retested 77 kindergarten children (ranging in ages from 3 years and 7 months to 7 years) at intervals of 2 days to 24 months. For the 25 subjects retested after 2 days they found a correlation coefficient of $.95 \pm .013$; for the 21 subjects retested after an interval of 5–7 months, $.942 \pm .014$, and for the 31 retested after a period of 20–24 months, $.852 \pm .034$.

Others of Terman's own figures (30, p. 141), however, indicate that constancy of IQ is considerably less for children under six than for older subjects. Of 99 children given first tests when under six years of age, 14.1 per cent showed a change of 15 or more points IQ upon retest, while of the 336 cases first examined after the age of six, only 4.7 per cent varied to this extent.

Baldwin and Stecher (2, pp. 60–62) found that of 59 children first tested between the ages of two and five years, 10 (17 per cent) showed changes of 15 or more points IQ on retests. They found that with retest intervals that varied from 3 to 20 months, IQ's on second tests are generally higher than on first. Johnson (22) and Woolley (38) reported a decided lack of constancy in IQ's on

retests of young children, greater in the early years than later. Hildreth (21) found changes of 20 points or more occurring in 19 per cent of children first tested before the age of six, as compared to 4.3 per cent of those first tested at a later age. Gray and Marsden (17), in their study of English children with a slightly modified form of the Stanford-Binet Scale, also found that the variability upon retests among their youngest group was markedly greater than upon any other of their age groups.

Goodenough (14) gave the Kuhlmann-Binet test to 100 two-year-old, 100 three-year-old, and 100 four-year-old children, 50 of each sex at each age. The children were retested after an average interval of 5.9 weeks. She found a mean absolute change, disregarding sign, of 8.5 points in IQ. The mean algebraic difference between first and second IQ's was 3.0 points for the two-year-olds, 3.2 points for the three-year-olds, and 6.6 points for the four-year-olds. The retest coefficient for the group as a whole was $.82 \pm .015$ (14, p. 163).

Wellman (35), in a somewhat recent study, reports gains in IQ with each succeeding Stanford-Binet test up to the fifth test for a large group of children, as many as 574 of whom were retested four to seven times. For 45 of these children, who were two, three, and four years of age on their first tests and who were retested from 3 to 8 months later, she found a mean gain of 9.9 points IQ and a correlation of $.84 \pm .03$ between first and second tests. Other findings on successive tests, which cannot be gone into here, make Wellman inclined to think that the rising IQ's found for her subjects are due to their attendance in the preschool laboratories of the Iowa Child Welfare Research Station. She reports that the rise in IQ appears to be cumulative from year to year and to be sustained throughout the school years when the children are in the environment of the University of Iowa Elementary School. She finds that when the same children are home over comparable intervals they fail to gain, although maintaining their high level.

Updegraff (34) found a correlation of only $.535 \pm .06$ between the original and repeated tests of a group of 63 preschool children examined before entrance to the Iowa Preschool Laboratories and re-examined approximately 6 months later; while she found a

correlation coefficient of .837±.017 for a similar group of 123 children to whom the first examination was given after the child had been in attendance from 2 to 8 weeks in the laboratory school and was accustomed to the school situation. Later tests of these same two groups of children yielded a correlation coefficient of .785±.027 between second and third tests. Fifty per cent of the children changed ten or more points in IQ between first and second tests, and the changes were larger for children from 19 to 42 months old than for those from 43 to 66 months old; increases in IQ were larger than decreases and occurred more often.

Whether or not the generally accepted tendency of the IQ to remain constant extends to the preschool levels appears to be very questionable. Practically all investigators agree that there is less constancy of IQ among children under six than among older boys and girls. An apparent exception is found in a recent study by Hallowell (19) in which she found her preschool subjects not more variable than the older groups surveyed by Foran. Hallowell, however, used a "developmental quotient" representing a diagnosis compounded by her on the basis not only of verbal and nonverbal tests but also developmental history, while practically all other studies of constancy referred to here have been based on the results of the Stanford-Binet Scale alone. Hallowell reported that she had found such extreme fluctuations in Stanford-Binet scores for children three and four years old that she did not feel justified in placing any reliance on this scale alone.

Since there are still relatively few published studies on retests of preschool children, data gathered by the Preschool Department were analyzed to determine the constancy of the rating found on cases where at least one retest had been given.

SUBJECTS AND TEST PROCEDURE

At the time this study was begun, the number of children who had had one retest was 114; there were 39 who had two retests and 11 who had three retests. Because of the small number of third retests, no analysis was made of these. Most of these 114 children (about 90 per cent) were nursery-school cases. Not all clinic children returned for retests, while almost all of the

nursery-school children were retested. The number of boys and girls was almost equal. Of the 114 cases receiving one retest, there were 55 boys and 59 girls. Of the 39 receiving two retests, there were 22 boys and 17 girls.

The group ranged in chronological age on the first test from 26 to 90 months, with the mean at 45.4 months. All unquestioned test results were included, regardless of the time interval between tests. The interval between first and second tests ranged from 1 to 40 months, with a mean interval of 10.6 months. The interval between second and third tests ranged from 6 to 25 months with a mean of 11.6 months.

FINDINGS: CONSTANCY OF THE IQ

The IQ's of the total group were distributed as shown in Table XXXVI. As shown in the table, the mean IQ of the first tests was 110.6±1.1; the mean IQ of the second tests was 111.9±1.0. The difference between the mean IQ of first and the mean IQ of second tests was 1.3±.8, the mean of second tests being higher. On this number of cases there appears to be only an insignificant difference between the mean IQ's of first and second tests.[7] For the 39 cases where a third test was given, the mean IQ on second tests was 115.1±2.0 and on third tests 115.1±1.9, the difference between the means being zero.

It must be remembered that comparisons of test results based on their respective mean IQ's are likely to be deceiving. As in this instance, the mean IQ's of first and of second tests may be very similar without the individual IQ's involved remaining highly constant, because losses in some individual IQ's may balance gains in others. These fluctuations which occurred in both directions are presented in Table XXXVII. The mean gain slightly exceeds the mean loss from first to second tests.

Table XXXVII shows the relation between IQ's on first tests and retests in terms of correlation coefficient,[8] mean gain, mean

[7] As in the preceding studies of this volume, a difference is not considered significant unless it is at least three times its probable error.

[8] Since IQ is by definition $\frac{\text{M.A.}}{\text{C.A.}}$, the factor C.A. appears in both correlated variables. It will be apparent that since a spuriously high C.A. would lower both

loss, mean absolute change disregarding sign, and range of changes. The correlations between first and second, and between first and third tests are .75 ± .03 and .75 ± .05, respectively; between second and third tests the correlation is .84 ± .03. This correlation of .75 is considerably lower than the usual correlations between successive tests of older children, which usually vary between .80 and .95. It is also lower than the retest coefficient for first and second tests found by Goodenough on the Kuhlmann-Binet and by Wellman on the Kuhlmann and Stanford-Binet scales for children of preschool age, although their retest coefficients are lower than those generally found for older children.

TABLE XXXVI

FREQUENCY DISTRIBUTION OF IQ'S

IQ	Test 1	Test 2	Test 3
155–159	.....	1	.....
150–154	.....	.....	.....
145–149	6	1	1
140–144	3	5	2
135–139	3	2	4
130–134	5	9	3
125–129	6	7	2
120–124	12	15	3
115–119	11	13	5
110–114	10	6	4
105–109	15	16	2
100–104	10	8	6
95– 99	12	12	4
90– 94	7	9	.....
85– 89	5	6	1
80– 84	7	4	1
75– 79	2	.....	1
Total number cases	114	114	39
Mean IQ	110.6±1.1	111.9±1.0	115.1±1.9
On 39 cases given 3d tests	.....	115.1±2.0	.....

IQ's and a spuriously low C.A. would raise both IQ's, errors in the C.A. will operate to elevate spuriously the correlation coefficient. The writer feels that these errors are, however, negligible. Furthermore, since this same tendency toward spurious correlation is present in the correlation of sigma scores of the Merrill-Palmer test, it should not influence the relative reliability of the two tests as found in this study.

Although the mean interval of time between tests and retests was about the same, there appears to be less change between second and third than between first and second tests, as indicated by the higher correlation coefficient for second and third tests and the smaller mean absolute change in IQ between second and third tests. Stutsman also found greater differences in IQ between first and second tests than between second and third tests for 91 Merrill-Palmer nursery-school and waiting-list children who were tested four times with the Stanford-Binet (36, pp. 50–51). The mean IQ of her group on the first test, however, was 117.9; on test two, 122.5; on test three, 121.5; and on test four, 119.8. She concluded that there was a practice effect shown from the first to the second test which was maintained through the fourth test. Cattell (7) concluded, from data of the Harvard University Growth Study, that when a Stanford-Binet test is repeated within a period of 3 or 4 months there is a mean gain of four or five points in the second IQ, due to practice effect, but that the practice effect carried beyond 6 months appears to be insignificant.

TABLE XXXVII

RELATION BETWEEN STANFORD-BINET IQ'S ON FIRST TESTS AND ON RETESTS

	No. of Cases	r	Mean Gain in IQ	Mean Loss in IQ	Mean Change in IQ*	Inter-quartile Range of Changes	Total Range of Changes
Test 1–2	114	.75±.03	10.3±.6	8.5±.7	9.1±.5	13.6	40 to −34
Test 2–3	39	.84±.03	7.5†	8.4†	7.6±.7	14.3	20 to −23
Test 1–3	39	.75±.05	.....	.....	.....	.....	.....

* Mean absolute change disregarding sign.
† Probable errors not computed because of small number of cases.

Table XXXVIII shows the frequency distribution of changes in IQ between first and second tests, differentiating between plus and minus changes. An analysis of absolute changes, disregarding sign, reveals that between first and second tests approximately 57 per cent of the cases changed less than 10 points in IQ, 43 per cent changed 10 or more points, and, of these, 10 per cent changed 20 or more points. These fluctuations exceeded considerably

those usually found for older children. As stated earlier, studies of constancy in the test results of older children have indicated that the probable error of the Stanford-Binet intelligence quotient is approximately five points under average conditions when causes of variation are uncontrolled. The mean change, disregarding sign, between first and second tests for these preschool children is considerably higher than five points; it is 9.1 points IQ. This is

TABLE XXXVIII

CHANGE IN STANFORD-BINET IQ BETWEEN FIRST AND SECOND TESTS

(114 Cases)

	Amount of Change in IQ Points	No. of Cases
Increase	36–40	1
	31–35	3
	26–30	1
	21–25	2
	16–20	9
	11–15	11
	6–10	19
	1– 5	16
	No Change	4
Decrease	1– 5	25
	6–10	8
	11–15	9
	16–20	5
	21–25	2
	26–30	1
	31–35	1
	36–40	0

slightly higher than the mean absolute change, disregarding sign, of 8.5 points IQ found by Goodenough with the Kuhlmann-Binet Scale among preschool children. When the findings of the present study are compared with the five points change of IQ in either a plus or minus direction, which is the amount of variability on retests that has usually been found for older children, only 39.5 per cent of the IQ's of these preschool children are found to possess a similar degree of constancy, while 37.7 per cent may be said to gain and 22.8 per cent to lose in intelligence quotient between first

and second tests. Between second and third tests 44 per cent remain as *constant* as do IQ's of older children, while 28 per cent gain and 28 per cent lose.

DESCRIPTIVE CLASSIFICATIONS

Such classifications as "average" or "superior," provided by Terman for descriptive purposes, are used rather widely in the clinical and the educational field. In such usage it is often assumed that, while IQ's do vary a few points, a child will at least remain within the same *classification* on retests. Wide as is the range of IQ's included in each classification, in this study only 50 per cent of the cases remained in the same Terman classification on first retest, while approximately 30 per cent passed into a higher classification and 20 per cent passed into a lower one. It must be remembered that a change of only a few points in IQ may alter a child's classification. It appears, therefore, that these classifying terms should be used most tentatively, especially in regard to children of preschool age.

Hallowell (18, p. 261), in a study published in 1928, found that with 68 children under 24 months of age, 74 per cent were in the same classification on a retest, 22 per cent gained, and 4 per cent lost. With 52 children between the ages of 24 and 26 months, 65 per cent remained the same, 27 per cent gained, and 8 per cent lost. With 22 children between 36 and 48 months, 90 per cent remained the same, 10 per cent gained, and none lost. Taking her group of 142 cases as a whole, 73 per cent remained in the same classification, 22 per cent gained, and 5 per cent lost. Hallowell's results show somewhat greater constancy than those of this study, but, in this earlier study, as in her more recent one referred to earlier in these pages, she used a "battery" of tests of varied types, whereas these results are for the Stanford-Binet Scale alone.

RELATIONSHIP OF CONSTANCY TO OTHER FACTORS

These data on retests were also analyzed with reference to the possible relationships of changes in IQ to chronological age, level of intelligence, length of intervals between tests, and sex. The total number of cases retested was obviously too small to serve

as the basis for any conclusions; for this reason no tables presenting these relationships are included here. Within the limitations of the data, however, the following trends are indicated:

Chronological age.—No consistent relationship is apparent, within the small age range of this study, between chronological age and the *amount* or the *direction of change*. Baldwin and Stecher (2), and Updegraff (34), however, found a tendency for older children within the preschool levels to vary more than the younger. When the amount of change found for preschool children in this present study is compared with those found in most studies of *older* children, these younger children do show considerably more change. This is in accordance with Foran's (11, p. 37) conclusion that, according to the literature, the constancy of the IQ is independent of age, with the exception of the IQ's of very young children, and that the largest deviations are observed in children under six years of age.

Although no consistent relationship between chronological age and *direction of change* is apparent within the limits of our data, for the group as a whole the tendency toward increase is slightly greater than toward decrease. Most investigators have found that among normal children the gains are more frequent and greater in amount than the losses.[9] Brown (6, p. 346), Hildreth (21, p. 374), Baldwin and Stecher (1, 2, and 3), Wellman (35), Updegraff (34, p. 161), and others have commented on the fact that this tendency is found especially in young children, but differences found for the present study are smaller than those found by some of these other investigators. The number of children who lost in IQ—50 cases—is not much smaller than the number who gained—60 cases. The mean gain was 10.3 points and the mean loss was 8.5 points IQ.

[9] It seems probable that this is due to the practice effects which were commented on earlier in this discussion of constancy, because it will be remembered that most authors have found a tendency for the general level of IQ's on first tests alone to fall with increasing chronological age. The general tendency for the individual child to gain in IQ on repeated tests seems to indicate that the practice effect sufficiently exceeds the tendency of the IQ to drop with increasing chronological age so that the former outweighs the latter. Obviously, the balancing of these two factors will depend upon other factors, such as the interval between test and retest, the age of the subject, and the level of his intelligence.

Level of intelligence.—The data of the present study reveal no significant relationship between the level of the child's intelligence, as measured by his IQ on the first test, and the *amount of change* in IQ between his first and second tests. This is in accord with the results of most other investigations in regard to both school children and preschool children, except that the IQ has been found to be somewhat more constant among feeble-minded children than among children with normal intelligence. There are no feeble-minded subjects among the 114 whose retests constitute the data of this study.

There appears to be a tendency in this study, however, for the *direction of change* to vary somewhat with the level of intelligence. For initial IQ's up to 110, increases tended to exceed decreases; for IQ's from 110 to 130, the changes appear to be about equally in a plus and a minus direction; while, for IQ's from 130 up, the tendency to decrease appears to exceed the tendency to increase. Somewhat similar tendencies have been reported by Hildreth (21, p. 373), Wellman (35), and Updegraff (34).[10] This may be a simple statistical regression tendency. Opposite tendencies are reported by Cattell (7), however. For 1,383 subjects (ages not stated) who were retested at intervals ranging from 3 to 72 months between first and second tests, a definite tendency was found for pupils of high IQ to gain and for those of low IQ to lose as they become older.

Interval between tests.—Within the limits of these data there appears to be no consistent tendency toward greater or less change at any retest interval. The intervals between first and second tests ranged from 1 to 40 months with a mean interval of 10.6 months. For 68 per cent of the total 114 cases, the interval between first and second tests ranged from 6 to 11 months. The findings for these data are in accordance with those of other studies. Constancy has usually been found to decrease somewhat with increases in the interval between tests, but the influence of this fac-

[10] Foran (11, p. 15) calls attention to the fact that, since the maximum intelligence quotient possible on the Stanford-Binet for persons above sixteen years of age is 122, higher quotients must descend to that level as a maximum as children reach the age of sixteen. This cause for decrease would not be operative for the subjects of the present study, however, since the highest age of any child at retest was nine years.

tor is found to be very slight except when the interval is a very long one.

Sex.—The relation between sex and *constancy* was also studied. Because of the small number of cases, sex differences could only be analyzed for first and second tests and for the group as a whole without regard to age levels. The coefficient of correlation between first and second IQ's was .80 ± .03 for the 55 boys and .70 ± .05 for the 59 girls. From these results it would appear that girls show less constancy on the Stanford-Binet Scale than do boys.

Baldwin and Stecher (2, p. 52) concluded that there is a tendency for girls to be more variable in IQ than boys. Goodenough (14), in her study of the Kuhlmann-Binet Scale, found that girls of preschool age appeared to gain more from practice than did boys of similar age. Foran (11), however, finds in his general review of the literature on *constancy* that no sex differences have been reliably established for normal children.

The author herself considers the findings of the present study on this point very questionable. Due either to chance or to some unknown selective factor, the 55 boys and 59 girls in this part of the study do not appear to be representative samplings of the sexes as found in the larger group. As reported earlier, for 237 boys the mean IQ on first tests was found to be 107.1 ± .68 and for 245 girls it was 109.8 ± .70; the difference between these IQ's did not appear to be significant. For this smaller sampling of 55 boys, however, the mean IQ on first tests was 105.6 ± 1.5, while for girls it was 115.2 ± 1.5. This discrepancy is probably a chance difference such as is likely to be found in any small number of cases, but obviously the boys who happened to be retested tended to be slightly inferior in test intelligence to the boys of the total group, whereas the test intelligence of the girls who were retested happened to be superior to those of the group as a whole.

In view of these facts, these findings regarding sex in relation to constancy are offered here for whatever they may be worth, and not because the differences revealed are accepted as significant differences. For boys the mean IQ on first tests was 105.6 ± 1.5, the standard deviation of the distribution being 16.4 ± 1.1. The mean IQ on second tests was 108.6 ± 1.4, the standard deviation being

15.3 ± 1.0. For girls the mean IQ on first tests was 115.2 ± 1.5, the standard deviation of the distribution being 17.4 ± 1.1. The mean IQ on second tests was 115.0 ± 1.5, with a standard deviation of 17.0 ± 1.1. The mean IQ of girls was 9.6 points higher on first tests than the mean IQ of boys, the probable error of this difference being 2.12. On second tests the difference between the mean IQ's of boys and girls was 6.4 ± 2.05. Both of these differences appear to be significant differences.

D. THE NORMS OF THE MERRILL-PALMER SCALE

SUBJECTS

The results of first Merrill-Palmer tests were analyzed in the same manner as the Stanford-Binet results presented in the preceding section, and with the same purpose of studying the adequacy of the age norms when applied to the cases of the Preschool Department of the Institute. Stutsman's norms represented a total of 631 cases, 300 boys and 331 girls, ranging in age from 18 to 77 months (27, p. 60).

The analysis presented here is based upon 367 first tests. The 367 children ranged in chronological age from 23 to 63 months. There were 187 boys and 180 girls, the sexes being fairly equal in number at almost every age level, as shown in Table XXXIX. In most of these cases the Merrill-Palmer was the first test the child had received. In some cases the Stanford-Binet had preceded. These were, for the most part, cases in which the Stanford-Binet had been given before the publication of the Merrill-Palmer Scale, or cases where a child did not do well on the Stanford-Binet test, apparently because of language handicap or some resistance to the test. In such instances, the Merrill-Palmer was usually given in order to give the child a better opportunity to show his abilities, even though the psychologist had not originally intended to give this test, because of lack of time, the child's age, or some similar circumstance.

As in the Stanford-Binet results reported earlier, the data here include test results on children from five nursery schools and on children examined at clinics. There were 240 nursery-school children. Of these, 93 were from Mary Crane; 67 from Winnetka; 59

from Franklin; 14 from Garden Apartments; and 7 from the Community Nursery School. The general characteristics of these school groups have already been described. The clinic cases included in this section of the study numbered 66, and 61 were from miscellaneous sources.

FINDINGS

The mean sigma score for the total group was .016 and the standard deviation of sigma scores 1.018. These are, of course,

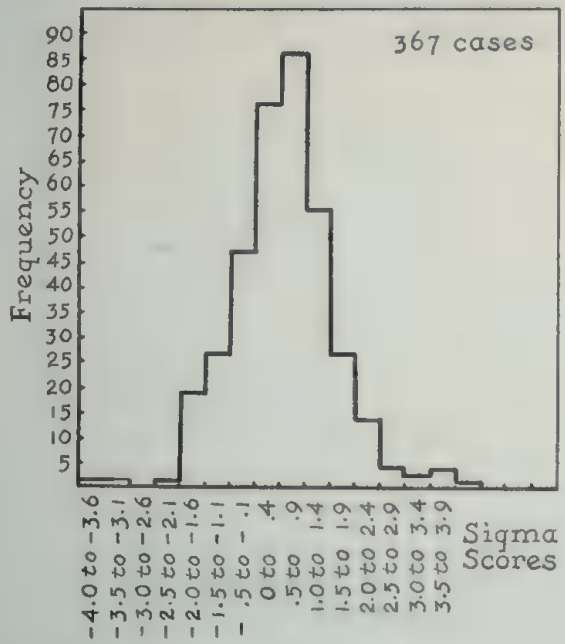

FIG. 4.—Distribution of Sigma scores on first tests

very close to the ideal mean and standard deviation for sigma scores which are 0 and 1.0, respectively. Sigma scores were obtained from Table XXVII in Stutsman's book (27, p. 237). In the computation of sigma scores, the 0 score in her table XXVII was divided into −.5 to −.1 and 0 to .4 in order to form equal step-intervals for statistical treatment. They were not read in the direction toward zero, but were interpolated.

Sigma scores were used in this part of this study only to obtain

the mean given above. Since a direct comparison with the Stanford-Binet was to be made, and since there are no standard-deviation tables for the Stanford-Binet, a unit of measure comparable for both tests, namely, mental age, was used. Stutsman does not advocate the use of IQ's for the Merrill-Palmer Scale, because variability in terms of mental age does not appear to increase at an

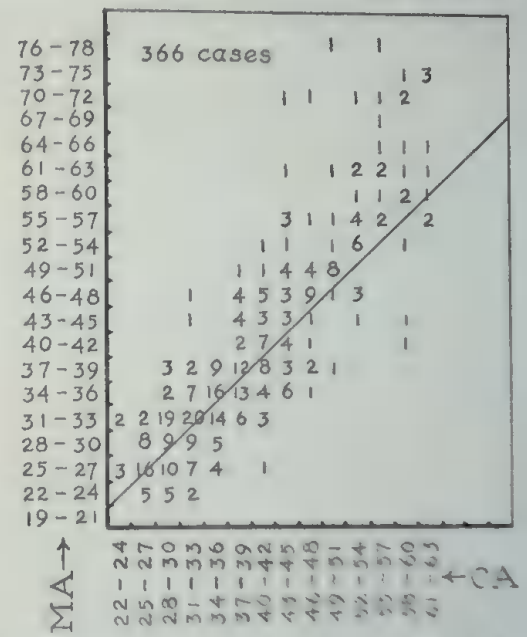

FIG. 5.—Correlation table for chronological and mental age on Merrill-Palmer test results.

evenly progressive rate (27, p. 235) in her scale. In the later section of this study which deals with *consumers*, however, where no direct age-for-age comparison with the Stanford-Binet was made, sigma scores and raw scores were used.

The distribution of sigma scores is given in Figure 4. Figure 5 is a correlation table for chronological and mental ages in individual cases. (In Fig. 5 the numbers of cases total 366 instead of 367 because one case, C.A. 30 months and M.A. 5 months, fell outside the limits of the figure and is therefore not included.)

Three-month age groups.—These data were divided into chronological age groups of three months each, as were the Stanford-Binet data. The mean mental age was calculated for each group and these results are given in Table XXXIX and plotted in Figure 3. From this table and curve it can be seen that our results conform fairly closely to Stutsman's norms at least up through the 46–48-month level, falling slightly below at some levels. Above that the relation is more irregular, but mental age tends to rise slightly above chronological age. The norms appear to be slightly

TABLE XXXIX

ANALYSIS OF FIRST MERRILL-PALMER TESTS BY THREE-MONTH AGE LEVELS

Chronological Age Levels in Months	Mean Mental Age	No. of Boys	No. of Girls	Total No. of Cases
22–24	27.5	3	3	6
25–27	26.6	15	17	32
28–30	29.6	25	23	48
31–33	31.6	25	24	49
34–36	33.5	27	21	48
37–39	37.3	20	23	43
40–42	40.0	15	18	33
43–45	45.3	12	17	29
46–48	47.4	[illegible]	12	20
49–51	52.0	8	6	14
52–54	54.2	14	4	18
55–57	64.0	6	3	9
58–60	59.8	5	5	10
61–63	65.6	4	4	8
Total	.....	187	180	367

too high from 31 to 42 months, inclusive, and slightly too low above 48 months. Whether this rise in the curve is due to the fact that the Merrill-Palmer Scale on the upper age levels is inadequately standardized, to selective factors present in these data, or to the smaller number of cases at these upper age levels, cannot be determined here.

It has seemed to the psychologists of the Preschool Department of the Institute that the *negativism* of the young child may be a factor which enters into these Merrill-Palmer test results. It has been the experience of our psychologists that more negativistic responses occur with children at the lower test levels than at

the higher. This appears to be due somewhat to the nature of the tests—such tests as standing on one foot, simple commands, and the like, apparently tending to produce negativistic responses more than do tests using performance material, such as the Seguin form board. Also the age of the child may enter into this, since in the opinion of many psychologists children are more negativistic between the ages of two and four or thereabouts than a little later.

While Stutsman recognizes these factors and makes allowance in the scoring for downright refusals (27, pp. 126, 135), yet there is the possibility that negativistic tendencies may operate in more

TABLE XL

ANALYSIS OF FIRST MERRILL-PALMER TESTS BY SIX-MONTH AGE LEVELS

C.A. in Months	Mean M.A.	*S.D.* of M.A.	$\frac{1000\sigma^*}{M}$	No. of Cases
25–30	28.9	3.6	12.5	80
31–36	33.0	4.1	12.4	97
37–42	39.0	5.9	15.1	76
43–48	46.7	8.2	17.6	49
49–54	53.6	7.6	14.2	32
55–60	62.4	9.5	15.2	19
Total	.....	.....	.....	353

* Coefficient of variation.

subtle ways not possible to score. These may tend to decrease the efficiency of performance on these lower levels, where, as shown in Figure 3, mean mental age drops slightly below chronological age. However, the age range in which the present test results fall below Stutsman's norms does not correspond to the age levels at which she found the highest percentage of refusals. Furthermore, it seems likely that the same factors would have entered into the data from which Stutsman's norms were derived. It may be possible that some selective factors, not readily detected, were present in either her data or those of the present study to account for the discrepancy between her norms and these data.

Six-month age groups.—With the Merrill-Palmer results also, the data were divided into 6-month age groups, as well as 3-month

groups, to increase the number of cases at each level. The mean mental ages and standard deviations were calculated, and these results are given in Table XL.

VARIABILITY

As in the Stanford-Binet data, variability in relation to chronological age was considered; the data are presented in Table XL. The measures of variability are again the standard deviations of mental age (in months). Coefficients of variation were calculated and are also included in the table. Variability of mental age appears to increase up to the 43–48-month level; above that it appears to remain constant or perhaps tends to decrease slightly.

Stutsman (27, p. 105, Fig. 3), herself, found that variability expressed in terms of standard deviations of score values increased with chronological age for the group of children on whom the Merrill-Palmer Scale was standardized. In her data this increasing variability was very obvious up to the 48-month level (27, p. 237, Table XXVII).

SEX DIFFERENCES

Sex differences in test results were not analyzed for these 367 cases. Since the numbers of each sex included (187 boys and 180 girls) were considerably less than the 300 boys and 331 girls included in Stutsman's own data (27, pp. 120–26), it did not seem likely that the data of the present study could contribute anything additional nor significant to what has already been reported by Stutsman herself.

E. CONSTANCY OF THE MERRILL-PALMER SCALE

Since no published data on the constancy of the Merrill-Palmer Scale are as yet available, it seemed worth while to analyze the test data of the Preschool Department in regard to constancy on retests, even though the number of cases to which more than one test had been given was too limited to make conclusive findings possible.

SUBJECTS AND TEST PROCEDURE

The number of children who had had one retest was 169; there were 56 who had had two retests. Since only 15 had been given

three retests, the third retests were not included in this study. The number of boys and girls was very equal; 91 boys and 78 girls had one retest; 30 boys and 26 girls had two retests.

These 169 cases included quite a wide sampling of subjects. A large number, 115, were children enrolled in nursery schools, but these children came from homes which represented a wide socio-economic range. From the Winnetka Nursery School there were 42; from the Mary Crane, 37; and 36 from the Franklin. (Statements regarding the general character of these nursery schools and the socio-economic status represented by them will be found in chapters ii and v.) Of the 169 children retested, 23 were clinic cases (see chapters iii and v), and 31 were from miscellaneous sources, about half of this number representing the same up-

Interval in Months	Test 1–2	Test 2–3
Less than 6	11	8
6–12	133	48
13–24	22	5
25–36	3	0
Total number cases	169	56

per socio-economic level of the Winnetka Nursery School and about half representing a level similar to that of the Franklin Nursery School.

All unquestioned test results were included, regardless of the time interval between tests. The intervals between first and second tests ranged from 2 to 29 months, with a mean interval of 9.18 months. Between second and third tests the intervals ranged from 2 to 19 months, with a mean interval of 8.68 months. Although the time interval, since the testing was part of a service program, was not kept constant, children were usually not retested within a 6-month period because of possible practice effect, and an effort was made to retest, when possible, within a year. As a result, most test intervals fell within a range of 6–12 months—that is, within a 7-month range. The exact figures are given in the accompanying table.

The chronological age of the group ranged from 23 to 57 months

on first tests, with a mean chronological age of 34.1 months. On second tests the chronological age range was from 28 to 64 months, with a mean of 43.6 months; and on third tests the range was from 35 to 62 months, with a mean of 47.2 months.

As in regard to the Stanford-Binet test, all examiners were trained psychologists, accustomed to handling young children and familiar with the Merrill-Palmer materials and procedure. In only 58 cases were the first and second tests given by the same examiner. In the remaining 111 cases the examiners were different individuals. In 14 cases, of the 56 in which three Merrill-Palmers were given, the examiner was the same for all three tests. Unless the Merrill-Palmer Scale differs from most others in this regard, however, the change of examiners in retests should not cause greater variations in the test results than when retests are made by the same examiner (see p. 276 of this study).

Obviously it would be possible in the Merrill-Palmer test to use raw scores, mental ages, sigma scores, or percentile ranks in determining coefficients of reliability for retests. For practical purposes, as in clinical use, for example, raw scores or mental ages are not as satisfactory to use as are sigma scores or percentile ranks. For instance, if John is tested as part of a clinical examination or for purpose of school placement, what one would like to know is whether or not John's position, as regards mental development, will be the same 8 months or 2 years hence, *in relation to children of his own age*. The use of sigma scores and percentile ranks facilitates this type of prediction, provided that the coefficient of reliability is found to be high.

For this reason, sigma scores were used in analyzing these data on constancy. However, since some psychologists prefer not to use derived scores for coefficients of reliability, these coefficients have also been calculated for raw scores. The same statistical treatment of sigma scores which was used for the 367 tests reported in the preceding pages was followed in analysis of retests—that is, the zero score was divided into −.5 to −.1 and 0 to .4 in order to form equal step-intervals for statistical treatment, and scores were interpolated, instead of being read in the direction toward zero.

FINDINGS: CONSTANCY OF SIGMA SCORES

The sigma scores for the total group were distributed as shown in Table XLI. The chronological age ranges and the mean chronological age for successive tests are also indicated. As shown in the table, the mean sigma score on first tests was +.065±.05; the standard deviation of the distribution was 1.04. The mean

TABLE XLI

FREQUENCY DISTRIBUTION OF SIGMA SCORES

Score	Test 1	Test 2	Test 3
+3.0 through +3.2	0	0	0
+2.7 through +2.9	2	1	0
+2.4 through +2.6	2	1	0
+2.1 through +2.3	2	4	0
+1.8 through +2.0	4	9	5
+1.5 through +1.7	4	6	4
+1.2 through +1.4	7	10	4
+ .9 through +1.1	12	18	9
+ .6 through + .8	12	28	10
+ .3 through + .5	22	26	7
.0 through + .2	20	10	6
− .3 through − .1	24	21	4
− .6 through − .4	14	6	1
− .9 through − .7	17	9	3
−1.2 through −1.0	11	7	2
−1.5 through −1.3	5	4	0
−1.8 through −1.6	6	2	1
−2.1 through −1.9	3	2	0
−2.4 through −2.2	0	3	0
−2.7 through −2.5	1	2	0
−3.0 through −2.8	0	0	0
−3.3 through −3.1	0	0	0
−3.6 through −3.4	1	0	0
Total no. of cases	169	169	56
Mean Sigma score	+.065±.054	+.379±.054	.....
On 56 cases that had 3d tests	−.096±.077	+.552±.097	+.638±.075
C.A. range in months	23–57	28–64	35–61
Mean C.A. in months	34.07	43.25	47.21

sigma score on second tests was +.379±.05; the standard deviation of the distribution was 1.04. For the 56 cases where three tests were given, the mean sigma score on first tests was −.096±.08 (*S.D.* of the distribution being .85); on second tests the mean sigma score was +.552±.1 (*S.D.* of the distribution being 1.1); and on third tests the mean sigma score was +.638±.06 (*S.D.* of the distribution being .83).

The *differences* between these means with their *probable errors* and their *significance quotients* $\left(\frac{M_1-M_2}{P.E._{M_1-M_2}}\right)$ are as follows:

Tests 1 and 2 ..... .314±.05 : 8.4
Tests 2 and 3 ..... .086±.09 : 1.0
Tests 1 and 3 ..... .734±.08 : 9.4

Following the procedure that has been used throughout this volume, in which a difference is considered to be significant if it is three or more times its probable error, it appears that the differences betweeen mean sigma scores on first tests and later tests are significant, while the difference between the sigma scores of second and third tests is not.

TABLE XLII

RELATION BETWEEN MERRILL-PALMER SIGMA SCORES ON FIRST TESTS AND ON RETESTS

	No. of Cases	r	Mean Gain in Sigma Score	Mean Loss in Sigma Score	Mean Change in Sigma Score*	Inter-quartile Range of Changes	Total Range of Changes
Test 1–2	169	.59±.03	.930±.04	.631±.04	.783±.03	1.331	3.2 to −2.4
Test 2–3	56	.57±.06	.697±.05	.583†	.638±.04	1.075	1.7 to −1.9
Test 1–3	56	.49±.07	.....	.....	.....	.....	.....

* Mean absolute change disregarding sign.
† Probable errors not computed because of small number of cases.

In Table XLII the relations between sigma scores on first tests and on retests are presented in terms of correlation coefficients, mean gains, mean losses, mean absolute changes disregarding sign, and ranges of changes.

Table XLIII shows the frequency distribution, by numbers and percentages of cases, for each amount of change in sigma score. The correlation of sigma scores between first and second tests is .59±.03; between first and third tests .49±.07; and between second and third tests .57±.06.

From the correlation coefficients for both sigma scores and raw scores, it appears that constancy between first and second tests does not differ markedly from constancy between second and

third tests. There is less constancy between first and third tests than between the others. From mean gains, mean losses, and percentages of cases gaining in scores as compared with percentages of cases losing, it is apparent that children vary somewhat more

TABLE XLIII

CHANGE IN SIGMA SCORE ON RETESTS

Amount of Change in Sigma Score		Test 1–2 (169 Cases)		Test 2–3 (56 Cases)	
		No. of Cases	Percentage of Cases	No. of Cases	Percentage of Cases
Increase	3.1 to 3.3	1	0.5	0	0
	2.8 to 3.0	0	0	0	0
	2.5 to 2.7	2	1.1	0	0
	2.2 to 2.4	2	1.1	0	0
	1.9 to 2.1	3	1.7	0	0
	1.6 to 1.8	6	3.6	1	1.7
	1.3 to 1.5	12	7.2	2	3.6
	1.0 to 1.2	17	10.1	10	17.9
	.7 to .9	24	14.2	2	3.6
	.4 to .6	15	8.9	7	12.5
	.1 to .3	19	11.2	10	17.9
	No change	7	4.1	1	1.7
Decrease	.1 to .3	18	10.7	10	17.9
	.4 to .6	16	9.5	5	9.0
	.7 to .9	14	8.4	4	7.2
	1.0 to 1.2	8	4.8	1	1.7
	1.3 to 1.5	4	2.4	2	3.6
	1.6 to 1.8	0	0	0	0
	1.9 to 2.1	0	0	1	1.7
	2.2 to 2.4	1	0.5	0	0
	2.5 to 2.7	0	0	0	0
	2.8 to 3.0	0	0	0	0
	3.1 to 3.3	0	0	0	0

between first and second tests than they do between second and third, at least for the number of cases included here.

From Tables XLII and XLIII there appears to be a marked inconstancy on retests, with gains exceeding losses. Both the median gains and the percentage of cases gaining exceed the median losses and the percentage of cases losing. This is true in regard to the change from second tests to third tests, as well as in regard to

the change from first to second tests. Computing from Table XLIII, one finds the following:

From 1st to 2d tests
- 26.0 per cent of the cases change .3σ or less
- 48.4 per cent of the cases gain more than .3σ
- 25.6 per cent of the cases lose more than .3σ

From 2d to 3d tests
- 37.5 per cent of the cases change .3σ or less
- 39.3 per cent of the cases gain more than .3σ
- 23.2 per cent of the cases lose more than .3σ

A very marked tendency to gain between first and second tests is apparent, with only a slight tendency to gain between second and third tests. It seems probable that this is a practice effect. Stutsman (36, p. 17) herself finds that scores are higher on the whole with retests than with first tests, and comments on the fact that, since scores tend to rise when retests are given at intervals of six to eight months, standards for tests and retests are given in separate tables. Kawin and Hoefer (23, p. 20), in a study of 44 two-and-one-half-year-old children, also found an apparent practice effect in retests with the Merrill-Palmer Scale, even when the time interval of approximately six months between tests was held nearly constant.

If this practice effect were fairly uniform for all children, however, it should not affect the correlation coefficients on retests, as the scores of all children would increase proportionately, in so far as the increase was due to practice effect. The probabilities are, however, that children of different levels of intelligence vary in the amount they profit from practice effect.

DESCRIPTIVE CLASSIFICATIONS

With the Merrill-Palmer Scale, as with the Stanford-Binet, descriptive classifications are used rather widely for practical work in the clinical and educational fields. Analysis similar to that made for the Stanford-Binet was, therefore, made for these Merrill-Palmer data in regard to the changes, as they occur from test to retest, from one descriptive classification to another. The classifications used were those given by Stutsman in Table XXVII (27, p. 237): Very Inferior, Inferior, Average, Superior, and Very Superior.

The *raw scores* of the present study, on first and second tests, were classified according to Stutsman's (27) directions as given on page 232. In this part of the study her directions were followed exactly (i.e., scores were not interpolated but were read as in the column which is nearest to zero sigma). Using this method, only 58.6 per cent of the cases were found to remain in the same classification on first retests, while 24.8 per cent passed into a higher classification and 16.6 per cent into a lower one. It must be remembered that under this method a change of only one point in score may change a child's test classification. It appears that these classifying terms, like those of Terman's for the Stanford-Binet Scale, must be used most tentatively for predictive purposes.

CONSTANCY IN TERMS OF RAW SCORES

The mean raw scores were as follows:

For 169 cases: Mean raw score on 1st tests, 34.51 ± .86 (*S.D.* 16.50)*
For 169 cases: Mean raw score on 2d tests, 56.73 ± .86 (*S.D.* 16.56)*
For 56 cases: Mean raw score on 1st tests, 26.80 ± .96 (*S.D.* 13.50)*
For 56 cases: Mean raw score on 2d tests, 49.75 ± 1.31 (*S.D.* 14.52)*
For 56 cases: Mean raw score on 3d tests, 66.80 ± 1.22 (*S.D.* 13.51)*

* *Standard Deviation of the Distribution.*

The *differences* between these means with their *probable errors* and their *significance quotients* $\left(\frac{M_1 - M_2}{P.E._{M_1 - M_2}}\right)$ are as follows:

Tests 1 and 2....Raw Scores....22.219 ± .64 : 34.9
Tests 2 and 3....Raw Scores....17.054 ± .93 : 18.4
Tests 1 and 3....Raw Scores....40.000 ± .91 : 43.8

It is obvious that all the above differences are significant. *Significance quotients* for raw scores, however, must obviously be large *if there is any considerable time interval* between tests and repeated tests, since raw scores increase automatically with chronological age. Therefore, the figures tabulated above for raw scores have no real significance unless analyzed in relation to chronological age.

For *raw scores* the coefficients of reliability on retests are as follows:

Test 1 and 2 = .72 ± .02
Test 2 and 3 = .73 ± .04
Test 1 and 3 = .67 ± .04

In order to eliminate the age factor, the partial correlation coefficients for the four variables were calculated by the following formula:[11]

$$r_{12.34} = \frac{r_{12.3} - r_{14.3}r_{24.3}}{\sqrt{(1 - r^2_{14.3})(1 - r^2_{24.3})}}.$$

Correlations between the four variables—(1) raw scores on first tests, (2) raw scores on second tests, (3) chronological age on first tests, (4) chronological age on second tests—were found to be as follows:

r 1 and 2 = .72	r 2 and 3 = .53
r 1 and 3 = .79	r 2 and 4 = .66
r 1 and 4 = .71	r 3 and 4 = .84

The resulting r between raw scores on first tests and raw scores on second tests was found to drop from .72 ± .02 to .59 ± .03 when chronological age was held constant. This procedure was carried out for the raw score correlation between the first and second tests only. From this r, however, it seems obvious that, although the relationships between the raw scores on successive tests appear to be significant, the original, higher correlations of .72, .73, and .67 found between them were due largely to the high correlations of raw scores with chronological age and are not maintained when the partial correlation method for obtaining relationships under the rigorous selection of the conditioning age variable is applied. It must be remembered that intervals between first and second tests were not uniform, and that variation in the interval constituted an uncontrolled factor.

Relationship of constancy to other factors.—The constancy of the Merrill-Palmer Scale is probably influenced by other factors, such as the chronological age level of a group of subjects, the level of their intelligence, the length of intervals between tests, and sex. The total number of cases retested (169) was obviously too small to make possible the study of constancy on retests in relation to these various factors. A tentative analysis within the obvious limitations of the data, such as was included in the Stanford-Binet material in Section C, seemed warranted in regard to that scale because it was possible to see whether or not the trends indicated in the data of this study were in agreement with the findings of the many other investigators who have published studies on the constancy of the Stanford-Binet Scale. Such a procedure did not seem warranted for these Merrill-Palmer data, however, because other published studies on the constancy of this scale are not available for comparison.

[11] See Karl J. Holzinger's *Statistical Methods for Students in Education* (Boston: Ginn & Co., 1928), p. 287.

F. CORRELATION BETWEEN STANFORD-BINET AND MERRILL-PALMER SCALES

A product-moment coefficient of correlation was obtained between mental age on the Stanford-Binet and mental age on the Merrill-Palmer scales for 55 cases where both tests were given within two weeks of each other. The coefficient was .78 ± .04. The mean Stanford-Binet mental age was 53.9 ± .8 months and the standard deviation of the distribution was 9.0 ± .6. The mean Merrill-Palmer mental age was 50.9 ± 1.0 months and the standard deviation of the distribution was 11.4 ± .7. The mental age range on the Merrill-Palmer test for these 55 cases was from 30 to 78 months and on the Stanford-Binet test, from 42 to 84 months; the IQ's of these 55 children on the Stanford-Binet Scale ranged from 83 to 159.

Stutsman (27, pp. 113, 114) obtained a correlation coefficient of .793 ± .01 for a group of 159 of the children upon whom the Merrill-Palmer Scale was standardized. The mental age range on the Stanford-Binet test for this group was from 34 to 70 months, and on the Merrill-Palmer test, from 30 to 78 months. For a group of feeble-minded children she obtained a coefficient of .794 ± .04. The mental age range on the Stanford-Binet for this group was from 26 to 70 months, and on the Merrill-Palmer, from 31 to 76 months. For a group of 115 Merrill-Palmer nursery-school chil-

dren, Stutsman found a coefficient of .783±.02. The mental age range for this group was from 32 to 80 months on the Stanford-Binet test and from 30 to 78 months on the Merrill-Palmer test. These several coefficients found by Stutsman (also product-moment formula coefficients) agree very closely with the one obtained in this study.

G. SUMMARY OF FINDINGS

1. For 482 children ranging in age from 37 to 78 months, mean mental age for first tests on the Stanford-Binet Scale was found to be considerably higher than mean chronological age at all levels except the 49–51-month and the 73–75-month levels, at which it appears to approximate chronological age. This tendency of the Stanford-Binet Scale to rate children too high at these early age levels is in agreement with the results found by most psychologists who have used the present Stanford-Binet Scale for children of preschool age.

2. A general downward trend in mean intelligence quotient is apparent on first tests, according to these data, as chronological age increases from the 37–42-month level to the 73–78-month level.

3. Variability in terms of the standard deviation of mental age appears, from these data, to increase with chronological age, for the Stanford-Binet Scale, up to the 55–60-month level, above which it appears to remain constant, or perhaps to decrease slightly.

4. Girls appear to be slightly superior to boys in mean IQ on first tests with the Stanford-Binet Scale. The difference, however, does not appear to be a significant one. This is in agreement with the general findings in the literature.

5. For 114 cases to whom second and 39 cases to whom third Stanford-Binet tests were given, *constancy was found to be considerably less than is usually found with older children.* The mean interval between first and second tests was 10.6 months; between second and third tests it was 11.6 months. The mean IQ on first tests was 110.6±1.1; on second tests 111.9±1.0; on second tests the mean IQ of the 39 cases who were given third tests was 115.1±2.0, while on third tests it was 115.1±1.9. Fluctuations, however, were greater than these means would seem to indicate. The mean absolute change disregarding sign was 9.1 points IQ between first and second tests. The mean gain slightly exceeded the mean loss. The correlation between IQ's on first and second tests was .75±.03; between IQ's of second and third tests the correlation was .84±.03, and between first and third tests it was .75±.05. Less change was found between second and third than between first and second tests. This may have been due to a practice effect; the mean interval of time between second and third tests was only one month greater than that between first and second tests.

6. Between first and second tests, approximately 57 per cent of the cases changed less than 10 points in IQ, 43 per cent changed 10 or more points, and, of these, 10 per cent changed 20 or more points. The IQ's of the subjects of this study, who ranged in chronological age on first tests from 26 to 90 months, were found in 60.5 per cent of the cases to vary between first and second tests *more than five points* in either a plus or minus direction, the probable error usually found for the Stanford-Binet intelligence quotient with older children. Only 50 per cent of the cases remained in the same *descriptive classification* on retests.

7. The data of this study were too limited to furnish the basis for any conclusions regarding the relationship of constancy to other factors. However, such trends as the findings appear to suggest in regard to chronological age, level of intelligence, length of intervals between tests, and sex differences may be tentatively stated as:

a) No consistent relationship is apparent between chronological age and the amount or the direction of change in IQ. Change is greater, however, than that usually found in older children, and the tendency toward increase is very slightly greater than toward decrease.

b) No significant relationship is apparent between the level of intelligence on the first test and the amount of change in IQ between first and second tests. There appears to be a tendency within the limits of these data, however, for initial IQ's up to 110 to increase and for IQ's higher than 130 to decrease, while for those between 110 and 130 there appears to be a tendency to vary about equally in a plus and a minus direction.

c) Within the limitations of these data, no consistent relationship is apparent between constancy and interval of time between tests.

d) According to these data, constancy of Stanford-Binet IQ appears to be slightly greater in boys than in girls, but the findings in regard to sex differences are to be regarded as questionable because the 55 boys and 59 girls who were retested do not appear to be representative samplings of the sexes as found in the total groups of this study.

8. For 367 children ranging in age from 23 to 63 months, mean mental age for first tests on the Merrill-Palmer Scale was found to approximate chronological age more closely than on the Stanford-Binet at all age levels except the 49–51-month level (where the scales coincide) and at the 55–57-month level, at which the Merrill-Palmer mean mental age exceeds the Stanford-Binet. For these data, mental age on the Merrill-Palmer test tends to fall slightly below chronological age for levels from 31 months to 42 months and to rise above it for levels from 51 months to 63 months. Where mental age for the cases included in this study falls below chronological age, however, it is only very slightly below, and, where it rises considerably above chronological age, this discrepancy may very possibly be due to the small number of cases in this study at these upper levels.

9. Variability in terms of the standard deviation of mental age appears to increase with chronological age, for the Merrill-Palmer Scale, up to the 43–48-month level, above which it appears to remain constant or perhaps to decrease slightly.

10. For 169 cases (ranging in chronological age from 23 to 57 months on first tests) in which second, and 39 cases in which third, Merrill-Palmer tests were given, there appears to be considerable inconstancy on retests. The mean interval between first and second tests was 9.18 months; between second and third tests it was 8.68 months. Most children were retested at intervals ranging from six months to one year. The mean sigma score on first tests was $+.065 \pm .05$; on second tests $+.379 \pm .05$; on second tests the mean sigma scores of the 56 cases in which three tests were given were $-.096$ on first tests, $+.552$ on second tests, and $+.638$ on third tests. The differences between these mean sigma scores appear to be significant, except as between second and third tests. The mean absolute change disregarding sign was found to be .783 sigma between first and second tests, and .638 sigma between second and third tests. Gains are considerably greater than losses, in regard to both amounts of change and percentages of cases losing and gaining. Less change was found between second and third tests than between first and second. There appears to be a marked practice effect on retests with the Merrill-Palmer Scale.

The correlation between sigma scores on first and second tests was $.59 \pm .03$; between second and third tests it was $.57 \pm .06$, between first and third tests it was $.49 \pm .07$.

11. Between first and second tests, 26 per cent of the cases changed $.3\sigma$ or less; 48.4 per cent gained more than $.3\sigma$; and 25.6 per cent lost more than $.3\sigma$. Between second and third tests, 37.5 per cent changed $.3\sigma$ or less; 39.3 per cent gained more than $.3\sigma$; and 23.2 per cent lost more than $.3\sigma$. Only 58.6 per cent of the cases were found to remain in the same *descriptive classification* on first retest, while 24.8 per cent passed into a higher and 16.6 per cent into a lower one.

12. Mean raw scores were found to be 34.51 on first tests and 56.73 on second tests; for the 56 cases in which three tests were given, mean raw scores were found to be 26.80 on first, 49.75 on second, and 66.80 on third tests. Correlations between raw scores were found to be .72 for tests 1 and 2; .73 for tests 2 and 3; and .67 for tests 1 and 3. With partial coefficients calculated in order to eliminate the factor of chronological age (since the intervals between tests and retests usually exceeded six months), the correlation coefficient between the raw scores of first and second tests drops to $.59 \pm .03$. This is practically the same coefficient as that found between first and second tests in terms of sigma scores.

13. The number of cases in which retests were given was too small to make possible statistical analyses of the relationship of constancy to other factors, such as chronological age, level of intelligence, interval between tests, and sex.

14. A product-moment coefficient of correlation of $.78 \pm .04$ was obtained between mental age on the Stanford-Binet and mental age on the Merrill-Palmer for 55 cases where both tests were given within two weeks of each other. This figure agrees very closely with correlation coefficients obtained by Stutsman in her analyses of these two scales.

c) Within the limitations of these data, no consistent relationship is apparent between constancy and interval of time between tests.

d) According to these data, constancy of Stanford-Binet IQ appears to be slightly greater in boys than in girls, but the findings in regard to sex differences are to be regarded as questionable because the 55 boys and 59 girls who were retested do not appear to be representative samplings of the sexes as found in the total groups of this study.

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DISCUSSION OF FINDINGS AND CONCLUSIONS

In any interpretation of the findings presented in this study, consideration must of course be given to possible selective factors present in the data. The general character of each of the major groups included in the study has been described. Although these subjects were not experimentally selected as a representative sampling of the general population, they include children from a very wide range of socio-economic backgrounds, and there is no apparent reason to think that they represent a specially selected group.

The fact that a considerable proportion of the children included in both the Stanford-Binet and Merrill-Palmer data were children who attended nursery schools may be a selective factor that affects the findings. Amount of nursery-school experience was not considered as a major factor in this study and was not held constant. The amount of time that these children had been in nursery school varied greatly, but it is the usual practice of the Preschool Department not to test a child until he has been in nursery school long enough to become somewhat adjusted to his new environment. Although the mean IQ of the clinic children in this study is somewhat lower than that of most of the nursery-school groups, it is higher than that of the Mary Crane nursery-school group. It would not seem, therefore, that nursery-school experience per se is a factor in the high IQ's found in this study. Furthermore, an even larger proportion of nursery-school children was included in the Merrill-Palmer results of this study than in the Stanford-Binet results, and no corresponding superiority of M.A. over C.A. is apparent in the Merrill-Palmer results.

The few investigations that have been made of the effect of nursery-school attendance upon intelligence as measured by tests have yielded somewhat contradictory findings. Woolley (38) reported that nursery-school experience tended to increase a child's ability to pass a Stanford-Binet test. Stutsman (27, p. 117) reported that these earlier findings of Woolley were borne out by further study of the test results on Merrill-Palmer nursery-school children, as compared with those of the children on their waiting list. Goodenough (16), using the Kuhlmann-Binet, found no significant difference between the gain in IQ on retests of nursery-school children and control-group children.

Hildreth (20) gave Stanford-Binet tests to 41 children who entered first grade with at least four months of nursery-school or kindergarten experience, and to 41 children who entered without previous school experience. The group with previous school experience had a mean IQ nearly six points higher than the mean IQ of the other group. This advantage tended to disappear, however, on repeated tests after both groups had had subsequent schooling.

Barett and Koch (5) used the Stanford-Binet with two paired groups of orphan children in an institution. One group received nursery-school training, the other did not. On retests, the group who had had the nursery-school training showed an increase over the control group.

A comparative study of a nursery-school versus a non-nursery-school group, carried on jointly by the Elizabeth McCormick Memorial Fund and the Institute for Juvenile Research, was reported by Kawin and Hoefer (23). The Merrill-Palmer Scale was used. No difference was found between two groups paired in the autumn when retested the following spring. Both groups gained, but gained about equally.

Wellman (35) finds evidence in her data that makes her conclude that preschool attendance, at least in the Iowa laboratories, causes a rise in IQ.

No one of these studies has attempted to repeat the exact conditions of any one of the others. The actual differences in school situations, in the form of the tests used, and in other important factors of the experiments, may account for the apparently contradictory findings. In view of the conflicting results reported, and her own first-hand experience in the study in which she participated, the present author is not inclined to think that the high Stanford-Binet IQ's reported in this present study, nor the slightly high mental ages found in the upper age levels of the Merrill-Palmer test results, have been affected by the nursery-school experience of those subjects who attended nursery school.

The possible factor of *clinic* selection as an item weighting the data should be considered, as there were a number of subjects in-

cluded in this study who were clinic cases of the Preschool Department. Although any group of clinic children must be considered selected—and just what selective factors are operative are not known—children in preschool clinics are probably less selected than those in clinics for older children. As pointed out in chapters iii and v and in Section B of this study, the children who come to the clinics of the Institute's Preschool Department present, for the most part, the problems of the average, "normal" child; few of them can be regarded as abnormal or subnormal children, and there are no selective factors apparent in this group.

There do not seem to be selective factors present in this study sufficient to account for the findings which show mental age secured on the Stanford-Binet Scale to exceed consistently chronological age at practically all preschool levels. Furthermore, the findings of other psychologists have usually indicated an even greater superiority of M.A. over C.A. when the Stanford-Binet Scale has been used for children of preschool age. These discrepancies between C.A. and M.A., and the tendency usually found for test intelligence to decrease for children as they pass from the preschool into the school years, indicate that the present Stanford-Binet Scale is inadequately standardized at the preschool levels. Results obtained with this scale as the measuring instrument should therefore be interpreted with recognition of the fact that it tends to give an unduly high mental rating to children of preschool age.

The inadequate standardization of the present Stanford-Binet Scale at the preschool age levels would naturally tend to render the IQ less constant for little children than for older boys and girls, but it is probably only one contributing factor. It is to be expected that test results would show greater inconstancy at early age levels than at later levels because they would be more affected by various personality traits and behavior reactions that are more characteristic of young children than of older ones, such as shyness, timidity, distractibility, negativism, and emotional instability. It is a question whether, even with a scale adequately standardized for the preschool levels, the *constancy* which has been found to be a characteristic tendency of the Stanford-Binet Scale

in regard to older children will be found to extend to the test intelligence of children of preschool age. While, from the results available at present, it seems probable that the lower ranges of the present Stanford-Binet Scale are much less reliable than the upper ranges, it is also very possible that the rate of mental growth is less stable during early childhood than among children of school age.

The Merrill-Palmer Scale appears to be better standardized, in regard to the adequacy of the age norms, than the lower age ranges of the present Stanford-Binet. It appears, however, from the data of the present study, to be subject to greater inconstancy on retests than does the Stanford-Binet Scale. Although the chronological age range of the group that was given the Merrill-Palmer test is narrower than that of the group which was given the Stanford-Binet, two procedures were used to control that discrepancy—the use of IQ's and sigma scores and the technique of partial correlation. The Merrill-Palmer Scale may be at some disadvantage as regards reliability because of the fact that the group of children given this test were somewhat younger than the group given the Stanford-Binet. To what extent this factor affects the results it is difficult to say. On the other hand, it should be recognized that the Stanford-Binet is at some disadvantage in that the intervals between tests and retests were slightly greater for this test than for the Merrill-Palmer.

It is also possible that much higher coefficients of reliability would be found for the Merrill-Palmer Scale if tests and retests are given within a few days or a few weeks of each other. However that may be, what is wanted for practical work where *prediction of future mental status* is an objective is a test with high coefficient of reliability on retests *when the time interval between tests amounts to months or even years*. It must be remembered that the data of this study include only 169 cases which were retested and that the interval between tests was not constant. It may be that other studies of larger numbers of cases under more controlled conditions will result in higher coefficients of correlation.

Until further results from other research centers are available, the constancy of the Merrill-Palmer Scale must remain an open question. A test with a correlation coefficient of only .59 on re-

tests would not be very satisfactory for purposes of prediction. The fact that for these data the correlations between first and second tests are exactly the same, whether they are calculated in terms of sigma scores or in terms of raw scores with the factor of chronological age eliminated, makes it seem probable that .59 really represents the reliability coefficient of the Merrill-Palmer Scale on retests, for such a group as those studied here and with such intervals between tests and retests. It may be that the Merrill-Palmer Scale will be found, upon more extensive study, to be more reliable than it appears to be from the data of this study. It is also possible that it might be modified in ways that would make it a more reliable scale for practical use in the clinical and educational fields where predictability is an objective. Since the scale is one which children appear to like and to which they respond very well, and since it appears to be well standardized in regard to adequacy of age norms on first tests, it would be desirable if it could be found to have a higher degree of constancy on retests.

It may perhaps be too much to expect any test for children of preschool age, however, to have as high a degree of constancy on retest as do tests of older children, since with young children more than with older ones, in most instances, test results are affected by such factors as the child's mood, behavior, and interest, by the ability of the examiner to enlist his co-operation, and by other factors in the test situation itself.

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A SUPPLEMENTARY NOTE ON THE QUESTION OF CAUSALITY

In the Preface to this volume the statement was made that the study of human behavior may be said to have taken its place among the sciences through recognition of the fact that behavior—like other phenomena of the world—is causally determined. The principle of *causality*, however, which has been for so long a point of controversy in philosophy and science, has recently been subjected to fresh attacks. It is obviously impossible to attempt any thorough discussion of this large problem here, but a few selected quotations and some brief comments on the question may be of interest. They may serve to suggest a point of view on the basis of which the worker in the field of human behavior may accept it as a science and still avoid the rigidity of mechanistic determinism, whether the concept of causality be retained or discarded.

Although these recent challenges have their source largely in the so-called "new physics," probably the majority of physicists themselves expect that the principle of causality will ultimately be found to hold.

> Thus, although we are still far from any positive knowledge, it seems possible that there may be some factor, for which we have so far found no better name than fate, operating in nature to neutralize the cast iron inevitability of the old law of causation . . . . . For instance, Professor Heisenberg has shown that the concepts of modern quantum theory involve what he calls a "principle of indeterminacy" [Sir James Jeans, *The Mysterious Universe* (New York: Macmillan, 1930), chap. ii, pp. 27–28].

Jeans goes on to say:

> Probably the majority of physicists expect that in some way the law of strict causation will in the end be restored to its old place in the natural world. So far it has not been restored, with the result that, up to the present at least, the picture of the universe presented by the new physics contains more room than did the old mechanical picture for life and consciousness to exist within the picture itself, together with the attributes which we commonly associate with them, such as free-will, and the capacity to make the universe in some degree different by our own presence [*Ibid.*, p. 31].

Should the long-accepted principle of causality not be restored to its old place, what of science? If nature does not obey exact laws, as the new physics seems to indicate, so that *laws of probability* must be substituted for or supplemented to invariant *laws of causation*, what would be the outlook in regard to the "science" of human behavior? This question provides an interesting field for speculation.

Perhaps science, at least in its application to human affairs, would not be much affected. If by science we mean *the organized body of tested truths*—and they may be statistical truths—then we may still keep the tested truths if we can discover the statistical probabilities of the uncertainties. Certainly it is true in the field of human behavior that the only *laws* we have thus far been able to discover are the *laws of averages*, which are only laws of probability. Statistics applies only to masses, not to individuals. A study of 1,000 cases can reveal only the average *tendencies of the group;* we cannot predict from this average what will be true of any specific individual case in the group. For the particular individual, only the *probabilities* can be predicted.

Although for certain practical purposes, what we want is to be able to predict the outcome in the individual case, there are probably compensations in this very inability. An utterly "fatalistic" attitude toward human life would be the outcome, could we predict the future with utter certainty, and that would have its undesirable aspects. With the enormous number and complexity of the factors that enter into the determination of human behavior, it is doubtful whether science can ever predict with absolute accuracy and gain complete control. In bacteriology, for example, where the situations seem somewhat simpler and where exact prediction appears to have been achieved, there is still not absolute *control.* The specific causes of diphtheria are known; the specific antitoxin which serves as a counter-agent to kill the bacteria which cause diphtheria is also known; yet deaths from diphtheria still occur. Even though recovery in 100 per cent of the cases might be assured through the use of antitoxin, there still remain such problems as securing correct diagnosis early and giving adequate antitoxin treatment immediately, for both of which intelligent co-operation of the patient, his family, and the medical profession are all required. Perhaps, as the new physics suggests, exact prediction and control of results are not possibilities in any science.

Would the abandonment of the fundamental concept of a causal universe limit the science of human behavior in its ultimate development of actual, practical control of behavior? The quotation of Jeans (cited above) suggests the opposite. By some, Jeans's interpretation is considered one of unwarranted optimism. Yet it is conceivable that with the principle of strict determinism withdrawn as a foundation on which practical scientific work in the field of human behavior may rest, new incentives for efforts in the education and guidance of human beings may be found in the restored powers of free-will and self-determinism, which have tended to topple under the advance of an extreme, mechanistic, scientific interpretation of human life.

To many of us, however, it has seemed quite possible to accept what has been, at least until now, the assumption of science—that we live in a *causal* universe—and still find a place for individual freedom in a scientific concept of human behavior. One may enlarge the scientific concepts of "reality" and "causality" to include the intellectual and "spiritual" (not used here in reference to an entity that exists after death) capacities of the human organism as legitimate scientific concepts, even though their scientific analysis still eludes us. Such a viewpoint, which regards *mind as a function of body*, was set forth long ago by Dr. Adolf Meyer:

> By making of mind something like the religious-philosophic concept of the soul, something opposed to the body instead of a function of the individual as a whole, traditional philosophy and psychology have rendered us a poor service [Adolf Meyer, "Objective Psychology or Psychobiology with Subordination of the Medically Useless Contrast of Mental and Physical," *Journal of the American Medical Association*, LXV (September 4, 1915), 860–62].
>
> We should above all things impress the student and the public with the fact that *the non-mental factors and the mental factors are made of similar stuff* [Adolf Meyer, "Conditions for a Home of Psychology in the Medical Curriculum," *Journal of Abnormal Psychology*, VII (December, 1912), 322].

This same viewpoint is expressed in a statement by Professor Herrick:

Voluntary self-control is effective because it is no longer penumbra of an ethereal spiritual presence floating around and into our personalities from the outside void. Nor is the feeling of voluntary power a smoke-screen to conceal our impotence in the matter. It is an integral part of the personality that grows up with us as the organs of the spiritual life grow. It appears only when the cerebral cortex begins to mature. It grows with the elaboration of this cortex and its power and effectiveness are expressions of the action of this organ. This is real power because these are real organs capable of doing work the same as our muscles are . . . . . These spiritual exercises are real facts, they are real functions of real bodies. They are results of causes, just like everything else that our bodies do. And in turn they are real causes of behavior. [C. Judson Herrick, *The Thinking Machine* (University of Chicago Press, 1929), chap. xxvii, p. 332, and chap. xxx, p. 364].

Perhaps ultimately we shall find that the concepts of *causality* and the *principle of indeterminacy*, which appear now to be inconsistent and contradictory, can both be retained in our interpretation of the universe around us. Here again we quote Dr. Adolf Meyer, who was probably the first to formulate the concept of integration in its application to the mental and physical life of human beings.

We recognize that throughout nature we have to face the general principle of unit-formation, and the fact that the new units need not be like a mere sum of the component parts but can be an actually new entity not wholly predictable from the component parts and known only through actual experience with the specific product. Hydrogen and oxygen, it is true, can form simple mixtures, but when they make an actual chemical integration we get a new specific type of substance, water, behaving and dividing according to its own laws and properties in a way not wholly predictable from just what we know of hydrogen and oxygen as such. Analogy prompts us to see in plants and animals products of physics and chemistry and organization, although the peculiarity of the product makes us recognize certain specificities of life not contained in the theory of mere physics and chemistry. All the facts of experience prompt us to see in mentation a biological function, and we are no longer surprised to find this product of integration so different from the nature and functions of all the component parts. All the apparent discontinuities in the intrinsic harmony of facts, on the one hand, and the apparent impossibility of accounting for new features and peculiarities of the new units, are shown to be a general feature of nature and of facts: integration is not mere summation, but a creation of ever-new types and units, with superficial discontinuities and with their own new denominators of special peculiarities; hence there is no reason to think of an insurmountable and unique feature in the origin of life, not even of mentally integrated life; no need of special mystical sparks of life, of a mysterious spirit, etc.; but—and this is the important point—also no need of denying the existence of all the evidence there may be of facts which we imply when we use the deeply felt concepts of mind and soul. In other words, we do not have to be mind-shy nor body-shy any longer [Adolf Meyer, *A Psychiatric Milestone, Bloomingdale Hospital Centenary, 1821–1921* (privately printed by the Society of the New York Hospital, 1921), pp. 38–39].

Such concepts of *integration* and also somewhat similar formulations of theories of *emergent evolution* have become quite widely accepted in recent years in the sciences dealing with human behavior, as well as in the field of philosophy. Thus many among the scientists and philosophers have for some time recognized the possibility that within the accepted concept of a causal universe there might still be the possibility of some unpredictable results.

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